

## SECTION 9.0

### **ENVIRONMENTAL OVERVIEW**

#### **9.1 INTRODUCTION**

This section provides a qualitative description of the Future No Action, Alternative 1, and Alternative 4 physical, natural, and human environment within the Double Eagle II Airport study areas established for this Master Plan for the years 2006 and 2021.

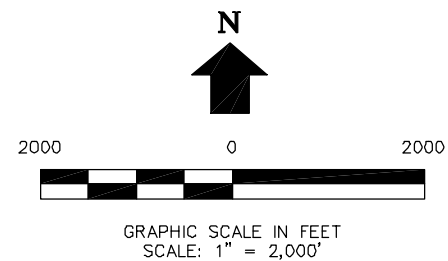
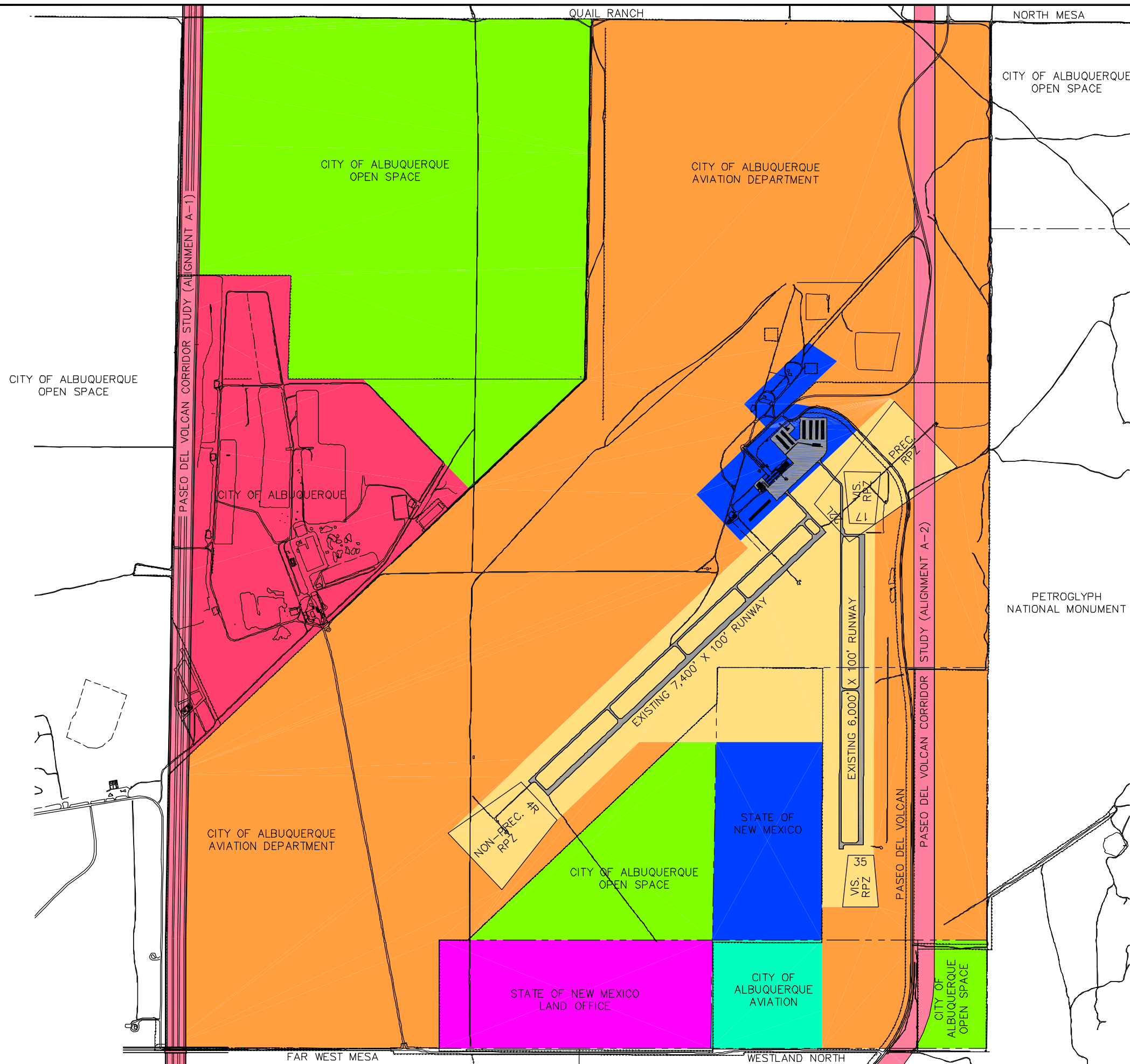
The Generalized Study Area (GSA), based on the estimated extent of potential impacts that may occur in the future, and Detailed Study Area (DSA), which is established to document-specific, direct environmental issues, are described in Section 4.0, Existing Environmental Condition. The GSA and the DSA are depicted on Figure 4.1.

The Future No Action Alternative, shown on Figure 9.1, assumes the following:

- No airfield improvements would occur through 2021.
- The No Action access road modification alternative (Figure 8.12) would occur.
- The medium forecast scenario (see Section 5.0, Forecasts of Aviation Demand) would occur.
- Eclipse Aviation would be operational at Double Eagle II Airport by 2006.
- An Air Traffic Control Tower (ATCT) would be operational at Double Eagle II Airport by 2006.

For the study year 2006, Alternatives 1 and 4 are referred to as the “Build Alternative” because of identical improvements. The 2006 Build Alternative, shown on Figure 9.2, assume the following:

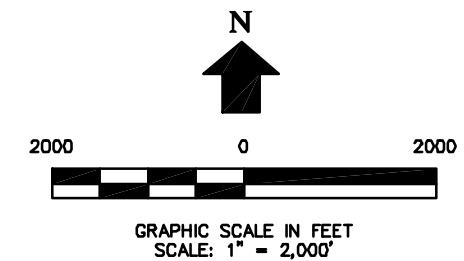
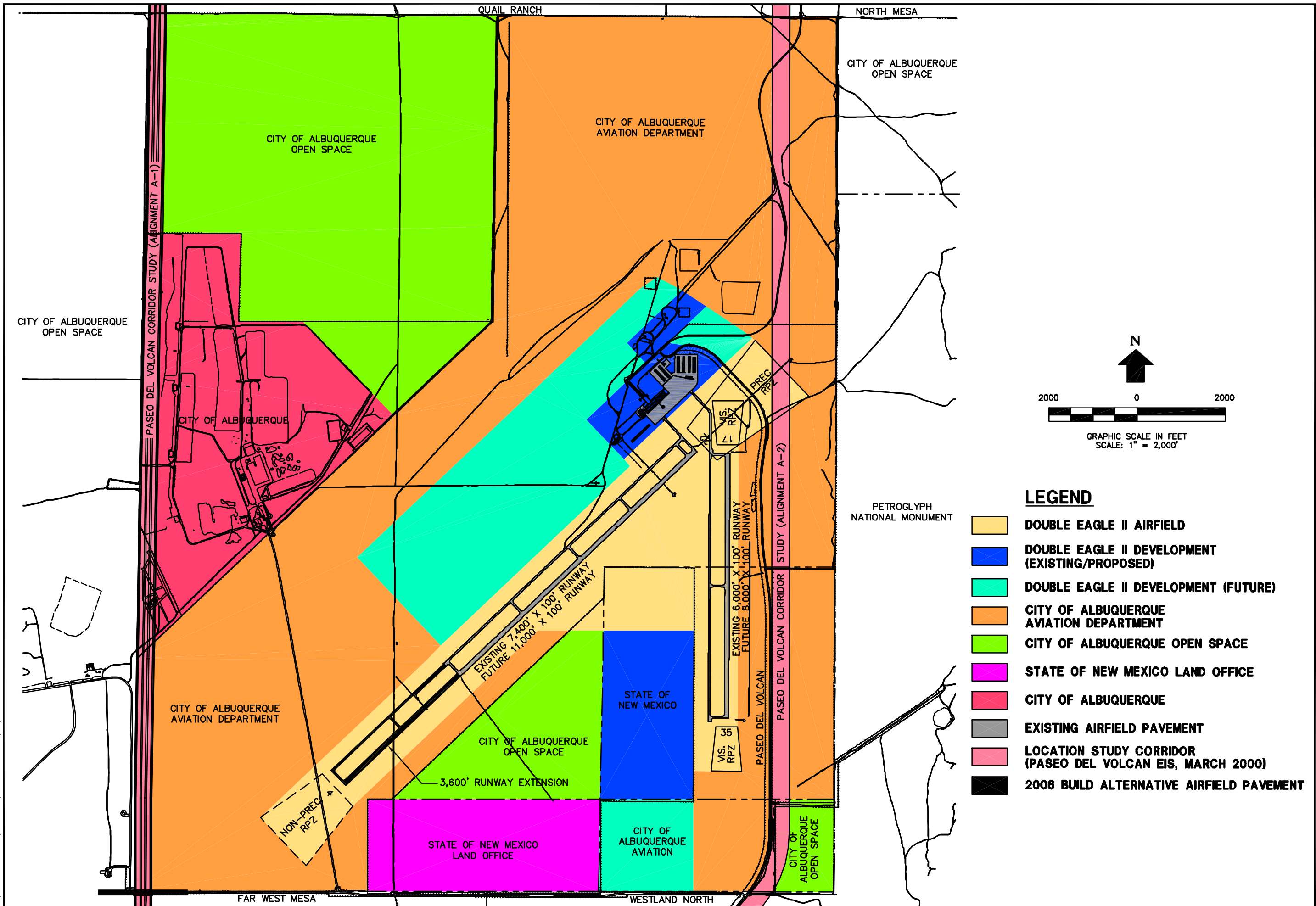
- Runway 4/22 would be extended 3,600 feet (to 11,000 feet total) to the southwest.
- Eclipse Aviation would be operational.
- An ATCT would be operational.



### LEGEND

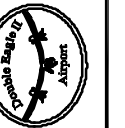
- DOUBLE EAGLE II AIRFIELD
- DOUBLE EAGLE II DEVELOPMENT (EXISTING/PROPOSED)
- DOUBLE EAGLE II DEVELOPMENT (FUTURE)
- CITY OF ALBUQUERQUE AVIATION DEPARTMENT
- CITY OF ALBUQUERQUE OPEN SPACE
- STATE OF NEW MEXICO LAND OFFICE
- CITY OF ALBUQUERQUE
- AIRFIELD PAVEMENT
- LOCATION STUDY CORRIDOR (PASEO DEL VOLCAN EIS, MARCH 2000)

## FUTURE NO-ACTION ALTERNATIVE AIRPORT LAYOUT



### LEGEND

- DOUBLE EAGLE II AIRFIELD
- DOUBLE EAGLE II DEVELOPMENT (EXISTING/PROPOSED)
- DOUBLE EAGLE II DEVELOPMENT (FUTURE)
- CITY OF ALBUQUERQUE AVIATION DEPARTMENT
- CITY OF ALBUQUERQUE OPEN SPACE
- STATE OF NEW MEXICO LAND OFFICE
- CITY OF ALBUQUERQUE
- EXISTING AIRFIELD PAVEMENT
- LOCATION STUDY CORRIDOR (PASEO DEL VOLCAN EIS, MARCH 2000)
- 2006 BUILD ALTERNATIVE AIRFIELD PAVEMENT



In addition to the 2006 Build Alternative improvements listed above, 2021 Alternative 1, shown on Figure 9.3, assumes the following:

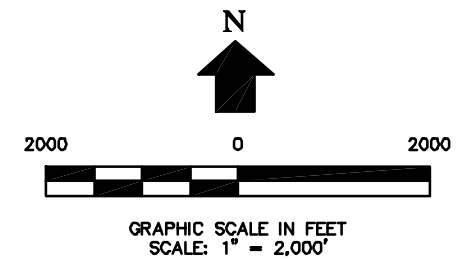
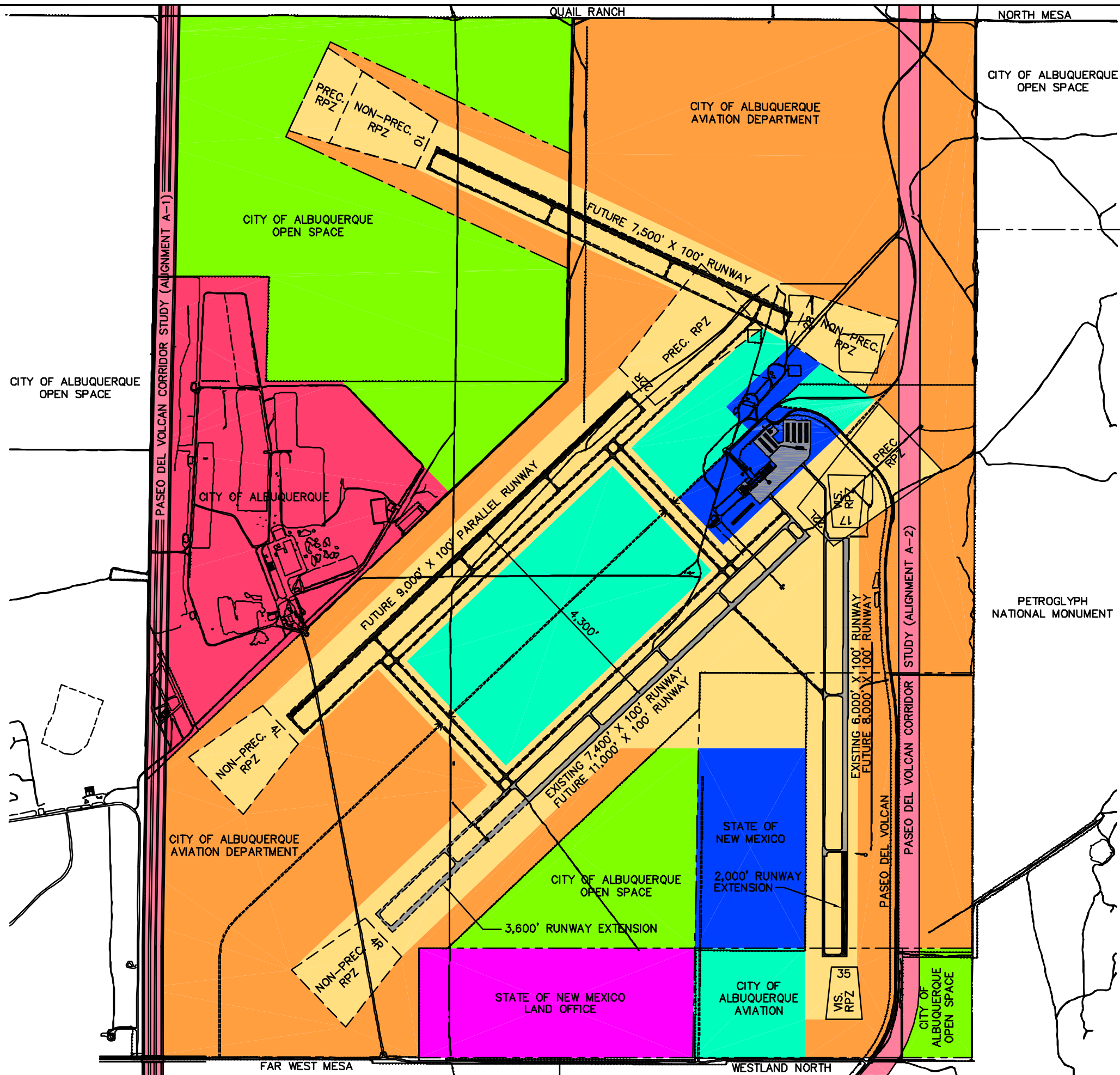
- Crosswind Runway 10/28 would be constructed to 7,500 feet and located north of the existing runways.
- Parallel Runway 4L/22R would be constructed to 9,000 feet. The existing Runway 4/22 would be designated 4R/22L.
- Runway 17/35 would be extended 2,000 feet (to 8,000 feet total) to the south.
- Associated taxiway and lighting facilities would be installed in support of the runway improvements.
- Airport access road modification Alternative 3 (Figure 8.14) would be constructed.
- On-airport roads would be constructed (Figure 8.15).
- The high forecast scenario (see Section 5.0, Forecasts of Aviation Demand), 50 percent of Albuquerque International Sunport general aviation (GA) based aircraft and operations shifting to Double Eagle II Airport by 2015, would occur.

In addition to the 2006 Build Alternative improvements listed above, 2021 Alternative 4, shown on Figure 9.4, assumes the following:

- Crosswind Runway 10/28 would be constructed to 7,500 feet and located south of the existing runways.
- Parallel Runway 4L/22R would be constructed to 9,000 feet. The existing Runway 4/22 would be designated 4R/22L.
- Runway 17/35 would be extended 2,000 feet (to 8,000 feet total) to the south.
- Associated taxiway and lighting facilities would be installed in support of the runway improvements.
- Airport access road modification Alternative 3 (Figure 8.14) would be constructed.
- On-airport roads would be constructed (Figure 8.16).
- The high forecast scenario (see Section 5.0, Forecasts of Aviation Demand), 50 percent of Albuquerque International Sunport GA based aircraft and operations shifting to Double Eagle II Airport by 2015, would occur.

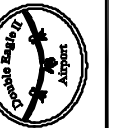


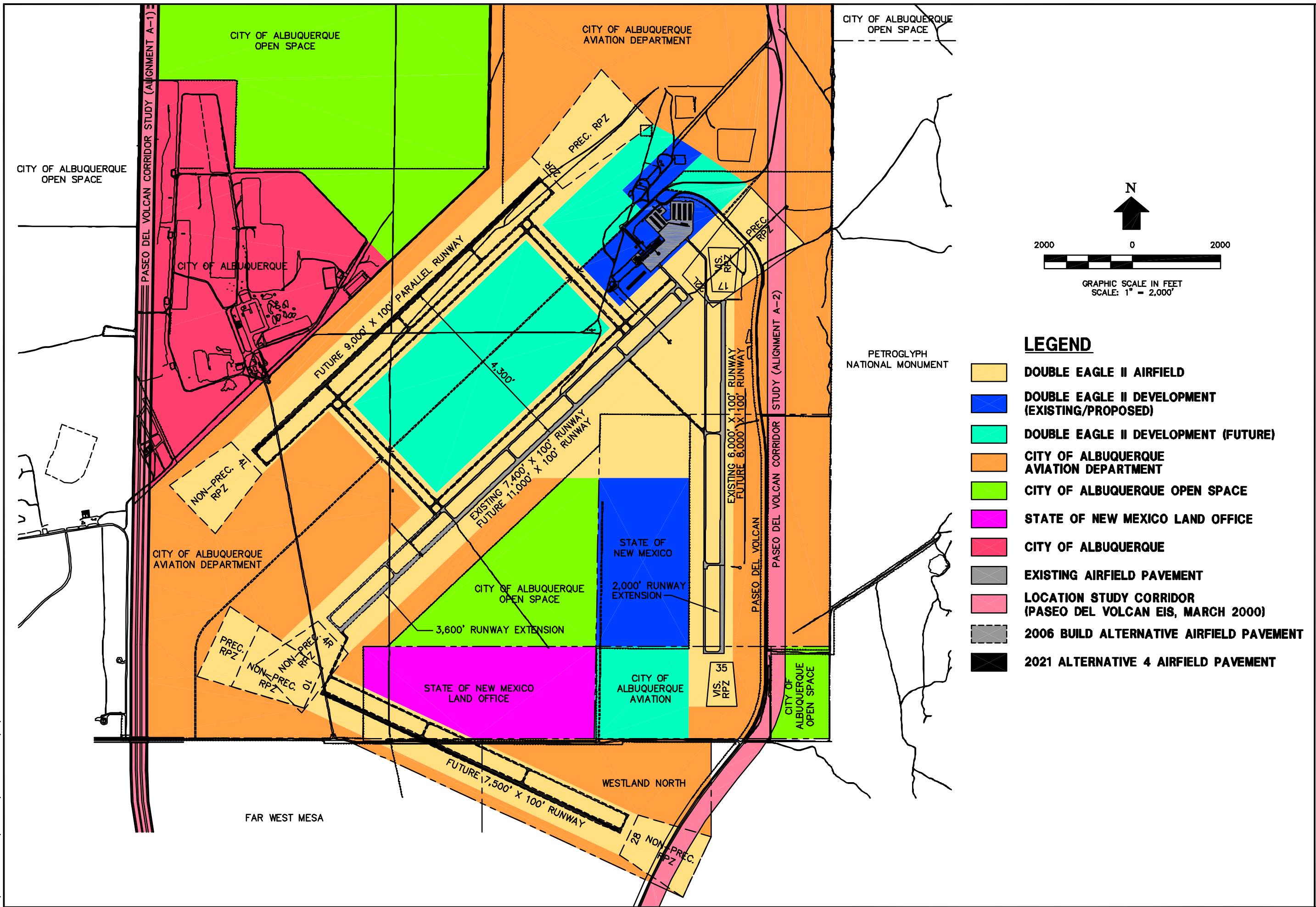
J:\DOUBLE EAGLE II\DRAWINGS\FIG 9.3.DWG 03/08/02 15:11



### LEGEND

- DOUBLE EAGLE II AIRFIELD
- DOUBLE EAGLE II DEVELOPMENT (EXISTING/PROPOSED)
- DOUBLE EAGLE II DEVELOPMENT (FUTURE)
- CITY OF ALBUQUERQUE AVIATION DEPARTMENT
- CITY OF ALBUQUERQUE OPEN SPACE
- STATE OF NEW MEXICO LAND OFFICE
- CITY OF ALBUQUERQUE
- EXISTING AIRFIELD PAVEMENT
- LOCATION STUDY CORRIDOR (PASEO DEL VOLCAN EIS, MARCH 2000)
- 2006 BUILD ALTERNATIVE AIRFIELD PAVEMENT
- 2021 ALTERNATIVE 1 AIRFIELD PAVEMENT





2021 ALTERNATIVE 4 AIRPORT LAYOUT

FIGURE:  
9.4

## 9.2 YEAR 2006 ANALYSIS

The Future No Action Alternative and Build Alternative were analyzed in 2006 to determine if any environmental impacts may occur. Alternatives 1 and 4 are analyzed collectively as the Build Alternative in the year 2006 scenario since all improvements are identical.

Non-impacted environmental categories in the year 2006 analysis include land use, socioeconomics, light emissions, floodplains, farmlands, hazardous materials, wild and scenic rivers, coastal zone management/coastal barriers, wetlands, and natural resources. Year 2006 airfield and related improvements in all alternatives are contained on existing airport property; therefore, surrounding land use will not be affected. In addition, the improvements are not anticipated to affect the socioeconomic makeup of the area. Light emissions generated by any year 2006 improvements are not anticipated to affect the surrounding area. Floodplains, farmlands, hazardous materials, wild and scenic rivers, coastal zones/coastal barriers, wetlands, and natural resources are not located within the areas of proposed improvements (see Section 4.0, Existing Environmental Condition). Therefore, there are no impacts to these areas.

Potentially impacted environmental categories, such as noise, DOT Section 4(f) and DOI Section 6(f) resources, historic and archaeological resources, solid waste, water resources, air quality, biotic communities, and threatened and endangered species are discussed below.

### 9.2.1 Noise

#### 9.2.1.1 2006 Future No Action Alternative Aircraft Noise Analysis Inputs

The project description and development of operations input is described in Section 4.2.5, Airport Noise. A brief description of the 2006 Future No Action Alternative inputs is as follows:

**Airport Layout** – The Future No Action Alternative airport layout, shown on Figure 9.1, is identical to the Existing Conditions layout.

**Aircraft Operations** – Similar to the Existing Conditions, a few general types of aircraft were used to model the Double Eagle II Airport aircraft fleet mix. The medium forecast scenario activity levels documented in Section 5.0, Forecasts of Aviation Demand, were used for the 2006 Future No Action Alternative. The operations were split in to day (7:00 a.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.). Table 9.1 shows the estimated annual average day operations by general aircraft type.

**TABLE 9.1**

**2006 FUTURE NO ACTION ALTERNATIVE ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Single-Engine Piston <sup>1</sup>		Multi-Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		Military				Grand Total		
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	C-130		Helicopter <sup>6</sup>		Day	Night	Total
Departures	24.1627	3.6064	2.3483	0.3690	11.7650	1.7580	0.6846	0.0212	10.8694	1.7109	1.8632	0.2933	0.6211	0.0978	52.3143	7.8566	60.1709
Arrivals	24.1627	3.6064	2.3483	0.3690	11.7650	1.7580	0.6846	0.0212	10.8694	1.7109	1.8632	0.2933	0.6211	0.0978	52.3143	7.8566	60.1709
Touch and Go <sup>7</sup>	305.0988	-	28.1129	-	-	-	-	-	-	-	-	-	-	-	333.2117	-	333.2117
<b>Total</b>	<b>353.4242</b>	<b>7.2128</b>	<b>32.8095</b>	<b>0.7380</b>	<b>23.5300</b>	<b>3.5160</b>	<b>1.3692</b>	<b>0.0424</b>	<b>21.7388</b>	<b>3.4218</b>	<b>3.7264</b>	<b>0.5866</b>	<b>1.2422</b>	<b>0.1956</b>	<b>437.8403</b>	<b>15.7132</b>	<b>453.5535</b>

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.



**Runway Use** – Table 9.2 shows the estimated Future No Action Alternative runway utilization at Double Eagle II Airport, which is identical to the Existing Scenario. The fixed-wing aircraft (and the military UH-60 helicopter) would utilize the runways at Double Eagle II Airport. The civilian helicopters would operate to and from the helicopter pad.

**TABLE 9.2**  
**FUTURE NO ACTION ALTERNATIVE RUNWAY UTILIZATION**  
**Double Eagle II Airport**  
**Master Plan Study**

Runway	Percent Utilization
4	20%
17	25%
22	40%
35	15%
<b>Total</b>	<b>100%</b>

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.

**Flight Tracks** – The flight tracks would be identical to those shown on Figures 4.3 through 4.5 for the Existing Scenario. The arrival and departure tracks travel to/from the northeast, Albuquerque, southeast, southwest, and northwest.

**Flight Track Utilization** – Estimated flight track use would be identical to the Existing Scenario flight track use. Table 9.3 shows the fixed-wing aircraft flight track utilization (only one touch and go track is associated with each runway; therefore, utilization for each is 100 percent). The arrival flight track utilizations are also shown on Figure 4.3 and the departure flight track utilizations are shown on Figure 4.4. Table 9.4 shows the number of average annual day flight operations by flight track for all aircraft types predicted to use Double Eagle II Airport in 2006 in the Future No Action Alternative.

Helicopter flight track utilization is not shown. Helicopter operations were modeled in an even percentage for arrivals/departures to or from the northeast and southwest of the helicopter pad.

**Aircraft Flight Profiles** – Standard Integrated Noise Model (INM) departure, arrival, and touch and go profiles were used to model the aircraft operations at Double Eagle II Airport.

**TABLE 9.3**  
**FUTURE NO ACTION ALTERNATIVE FIXED-WING AIRCRAFT**  
**FLIGHT TRACK UTILIZATION**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Track ID	Track Utilization
Departure	ABQ	2%
	NE	36%
	NW	36%
	SW	24%
	SE	2%
Arrival	ABQ	2%
	NE	36%
	NW	36%
	SW	24%
	SE	2%
Touch and Go	04T1	100%
	17T1	100%
	22T1	100%
	35T1	100%

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.

#### 9.2.1.2 2006 Future No Action Alternative Aircraft Noise Exposure

Noise contours were generated with the INM for the 2006 Future No Action Alternative. The estimated DNL 65 dBA noise contour for the 2006 Future No Action Alternative is shown on Figure 9.5. As shown, the entire noise contour would be contained within the airport boundary. The area of the contour is estimated to be 1.232 square miles. Therefore, there would be no noise-sensitive land uses with the DNL 65 dBA noise contour and no land use incompatibility would result from the operation of the airport in the 2006 Future No Action Alternative. Although the analysis indicated that there are predicted to be no noise impacts because of the operation of the airport, the analysis considers the use of the DNL noise metric and the average person's response to noise. It is possible that some individuals in nearby communities who may be particularly sensitive to noise will consider themselves impacted from the 2006 Future No Action nonetheless. In addition, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses. These analyses could be conducted as part of a more detailed Environmental Assessment (EA) on the proposed Master Plan developments.

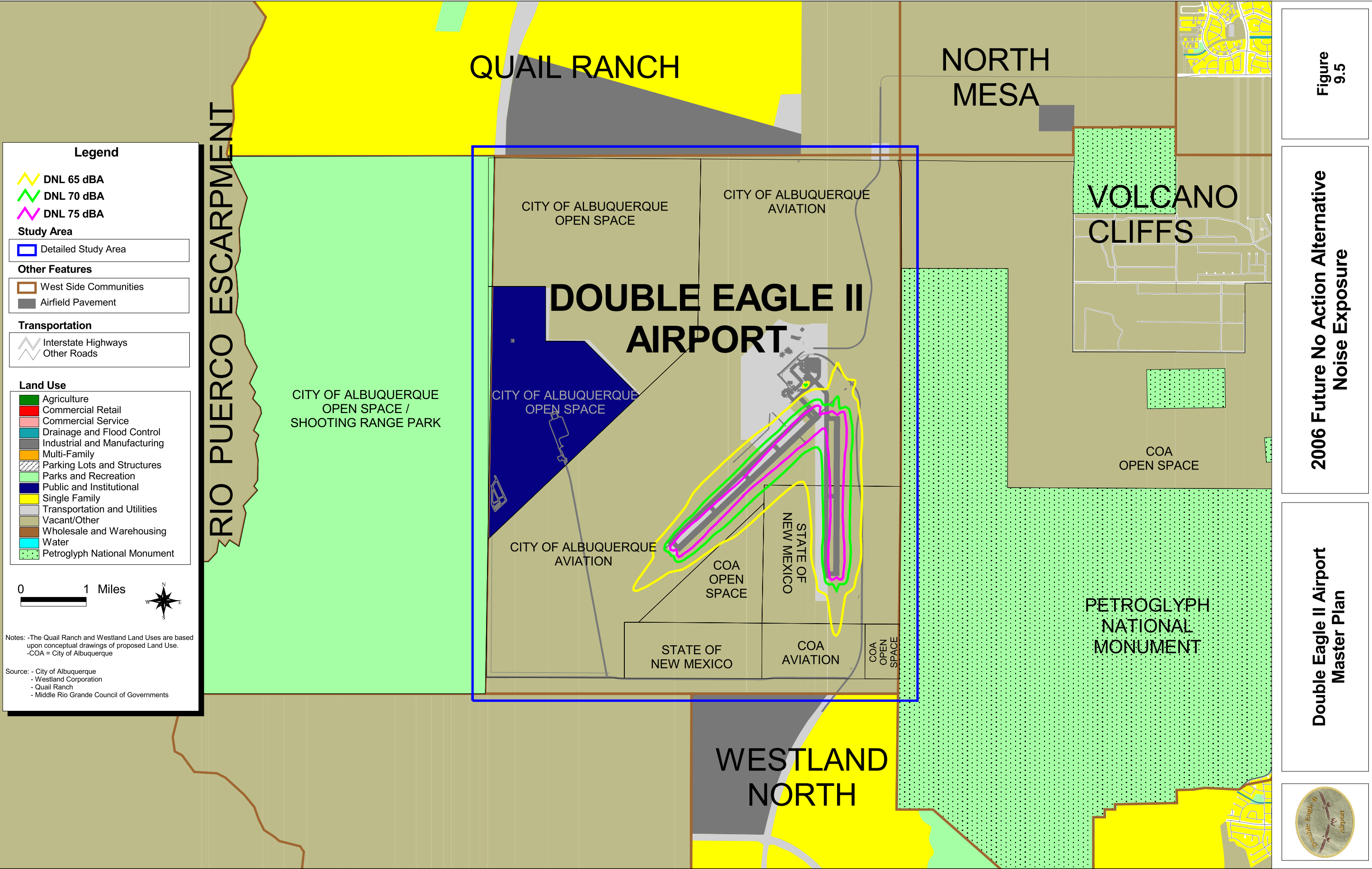


TABLE 9.4

**2006 FUTURE NO ACTION ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Departure	4	ABQ	0.0967	0.0144	0.0094	0.0015	-	-	-	-	0.0435	0.0068	0.0075	0.0012	0.0025	0.0004	0.1595	0.0243	0.1838
		NE	1.7397	0.2597	0.1691	0.0266	-	-	-	-	0.7826	0.1232	0.1342	0.0211	0.0447	0.0070	2.8703	0.4376	3.3078
		NW	1.7397	0.2597	0.1691	0.0266	-	-	-	-	0.7826	0.1232	0.1342	0.0211	0.0447	0.0070	2.8703	0.4376	3.3078
		SW	1.1598	0.1731	0.1127	0.0177	-	-	-	-	0.5217	0.0821	0.0894	0.0141	0.0298	0.0047	1.9135	0.2917	2.2052
		SE	0.0967	0.0144	0.0094	0.0015	-	-	-	-	0.0435	0.0068	0.0075	0.0012	0.0025	0.0004	0.1595	0.0243	0.1838
	17	ABQ	0.1208	0.0180	0.0117	0.0018	-	-	-	-	0.0543	0.0086	0.0093	0.0015	0.0031	0.0005	0.1993	0.0304	0.2297
		NE	2.1746	0.3246	0.2113	0.0332	-	-	-	-	0.9782	0.1540	0.1677	0.0264	0.0559	0.0088	3.5878	0.5470	4.1348
		NW	2.1746	0.3246	0.2113	0.0332	-	-	-	-	0.9782	0.1540	0.1677	0.0264	0.0559	0.0088	3.5878	0.5470	4.1348
		SW	1.4498	0.2164	0.1409	0.0221	-	-	-	-	0.6522	0.1027	0.1118	0.0176	0.0373	0.0059	2.3919	0.3646	2.7565
		SE	0.1208	0.0180	0.0117	0.0018	-	-	-	-	0.0543	0.0086	0.0093	0.0015	0.0031	0.0005	0.1993	0.0304	0.2297
	22	ABQ	0.1933	0.0289	0.0188	0.0030	-	-	-	-	0.0870	0.0137	0.0149	0.0023	0.0050	0.0008	0.3189	0.0486	0.3675
		NE	3.4794	0.5193	0.3382	0.0531	-	-	-	-	1.5652	0.2464	0.2683	0.0422	0.0894	0.0141	5.7405	0.8751	6.6157
		NW	3.4794	0.5193	0.3382	0.0531	-	-	-	-	1.5652	0.2464	0.2683	0.0422	0.0894	0.0141	5.7405	0.8751	6.6157
		SW	2.3196	0.3462	0.2254	0.0354	-	-	-	-	1.0435	0.1642	0.1789	0.0282	0.0596	0.0094	3.8270	0.5834	4.4104
		SE	0.1933	0.0289	0.0188	0.0030	-	-	-	-	0.0870	0.0137	0.0149	0.0023	0.0050	0.0008	0.3189	0.0486	0.3675
	35	ABQ	0.0725	0.0108	0.0070	0.0011	-	-	-	-	0.0326	0.0051	0.0056	0.0009	0.0019	0.0003	0.1196	0.0182	0.1378
		NE	1.3048	0.1947	0.1268	0.0199	-	-	-	-	0.5869	0.0924	0.1006	0.0158	0.0335	0.0053	2.1527	0.3282	2.4809
		NW	1.3048	0.1947	0.1268	0.0199	-	-	-	-	0.5869	0.0924	0.1006	0.0158	0.0335	0.0053	2.1527	0.3282	2.4809
		SW	0.8699	0.1298	0.0845	0.0133	-	-	-	-	0.3913	0.0616	0.0671	0.0106	0.0224	0.0035	1.4351	0.2188	1.6539
		SE	0.0725	0.0108	0.0070	0.0011	-	-	-	-	0.0326	0.0051	0.0056	0.0009	0.0019	0.0003	0.1196	0.0182	0.1378
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Arrival	4	ABQ	0.0967	0.0144	0.0094	0.0015	-	-	-	-	0.0435	0.0068	0.0075	0.0012	0.0025	0.0004	0.1595	0.0243	0.1838
		NE	1.7397	0.2597	0.1691	0.0266	-	-	-	-	0.7826	0.1232	0.1342	0.0211	0.0447	0.0070	2.8703	0.4376	3.3078
		NW	1.7397	0.2597	0.1691	0.0266	-	-	-	-	0.7826	0.1232	0.1342	0.0211	0.0447	0.0070	2.8703	0.4376	3.3078
		SW	1.1598	0.1731	0.1127	0.0177	-	-	-	-	0.5217	0.0821	0.0894	0.0141	0.0298	0.0047	1.9135	0.2917	2.2052
		SE	0.0967	0.0144	0.0094	0.0015	-	-	-	-	0.0435	0.0068	0.0075	0.0012	0.0025	0.0004	0.1595	0.0243	0.1838
	17	ABQ	0.1208	0.0180	0.0117	0.0018	-	-	-	-	0.0543	0.0086	0.0093	0.0015	0.0031	0.0005	0.1993	0.0304	0.2297
		NE	2.1746	0.3246	0.2113	0.0332	-	-	-	-	0.9782	0.1540	0.1677	0.0264	0.0559	0.0088	3.5878	0.5470	4.1348
		NW	2.1746	0.3246	0.2113	0.0332	-	-	-	-	0.9782	0.1540	0.1677	0.0264	0.0559	0.0088	3.5878	0.5470	4.1348
		SW	1.4498	0.2164	0.1409	0.0221	-	-	-	-	0.6522	0.1027	0.1118	0.0176	0.0373	0.0059	2.3919	0.3646	2.7565
		SE	0.1208	0.0180	0.0117	0.0018	-	-	-	-	0.0543	0.0086	0.0093	0.0015	0.0031	0.0005	0.1993	0.0304	0.2297
	22	ABQ	0.1933	0.0289	0.0188	0.0030	-	-	-	-	0.0870	0.0137	0.0149	0.0023	0.0050	0.0008	0.3189	0.0486	0.3675
		NE	3.4794	0.5193	0.3382	0.0531	-	-	-	-	1.5652	0.2464	0.2683	0.0422	0.0894	0.0141	5.7405	0.8751	6.6157
		NW	3.4794	0.5193	0.3382	0.0531	-	-	-	-	1.5652	0.2464	0.2683	0.0422	0.0894	0.0141	5.7405	0.8751	6.6157
		SW	2.3196	0.3462	0.2254	0.0354	-	-	-	-	1.0435	0.1642	0.1789	0.0282	0.0596	0.0094	3.8270	0.5834	4.4104
		SE	0.1933	0.0289	0.0188	0.0030	-	-	-	-	0.0870	0.0137	0.0149	0.0023	0.0050	0.0008	0.3189	0.0486	0.3675

**TABLE 9.4 (Continued)**

**2006 FUTURE NO ACTION ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
	35	ABQ	0.0725	0.0108	0.0070	0.0011	-	-	-	-	0.0326	0.0051	0.0056	0.0009	0.0019	0.0003	0.1196	0.0182	0.1378
		NE	1.3048	0.1947	0.1268	0.0199	-	-	-	-	0.5869	0.0924	0.1006	0.0158	0.0335	0.0053	2.1527	0.3282	2.4809
		NW	1.3048	0.1947	0.1268	0.0199	-	-	-	-	0.5869	0.0924	0.1006	0.0158	0.0335	0.0053	2.1527	0.3282	2.4809
		SW	0.8699	0.1298	0.0845	0.0133	-	-	-	-	0.3913	0.0616	0.0671	0.0106	0.0224	0.0035	1.4351	0.2188	1.6539
		SE	0.0725	0.0108	0.0070	0.0011	-	-	-	-	0.0326	0.0051	0.0056	0.0009	0.0019	0.0003	0.1196	0.0182	0.1378
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Touch and Go <sup>7</sup>		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
	4	04T1	61.0198	-	5.6226	-	-	-	-	-	-	-	-	-	-	-	66.6423	-	66.6423
	17	17T1	76.2747	-	7.0282	-	-	-	-	-	-	-	-	-	-	-	83.3029	-	83.3029
	22	22T1	122.0395	-	11.2452	-	-	-	-	-	-	-	-	-	-	-	133.2847	-	133.2847
	35	35T1	45.7648	-	4.2169	-	-	-	-	-	-	-	-	-	-	-	49.9818	-	49.9818
<b>Total</b>			353.4242	7.2128	32.8095	0.7380	23.5300	3.5160	1.3692	0.0424	21.7388	3.4218	3.7264	0.5866	1.2422	0.1956	437.8403	15.7132	453.5535

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.



### 9.2.1.3 2006 Build Alternative Aircraft Noise Analysis Inputs

**Airport Layout** – The Build Alternative would contain extensions of the existing Runways 4/22 and 17/35. The 2006 Build Alternative airport layout, with the runway extensions, is shown on Figure 9.2.

**Aircraft Operations** – Similar to the Existing Conditions and Future No Action Alternative, a few general types of aircraft were used to model the Double Eagle II Airport aircraft fleet mix. The high forecast scenario activity levels documented in Section 5.0, Forecasts of Aviation Demand, were used for the 2006 Build Alternative. The operations were split into day (7:00 a.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.). Table 9.5 shows the estimated annual average day operations by general aircraft type.

**Runway Use** – Table 9.6 shows the estimated 2006 Build Alternative runway utilization at Double Eagle II Airport. The fixed-wing aircraft (and the military UH-60 helicopter) would utilize the runways at Double Eagle II Airport. The civilian helicopters would operate to and from the helicopter pad. Jet aircraft would be anticipated to use the extended Runway 4/22 for 80 percent of all operations.

**Flight Tracks** – The flight tracks would be similar to those shown on Figures 4.3 through 4.5 for the Existing Scenario. The arrival and departure tracks travel to/from the northeast, downtown Albuquerque, southeast, southwest, and northwest. The runway extensions would allow aircraft to takeoff and arrive at the extended runway endpoints to the south and southwest.

**Flight Track Utilization** – Estimated flight track use would be identical to the Existing Scenario and Future No Action Alternative flight track use. Table 9.7 shows the fixed-wing aircraft flight track utilization (only one touch and go track is associated with each runway; therefore, utilization for each is 100 percent). The arrival flight track utilizations are also shown on Figure 4.3, and the departure flight track utilizations are shown on Figure 4.4. Table 9.8 shows the number of average annual day flight operations, by flight track, for all aircraft types that would use Double Eagle II Airport.

Helicopter flight track utilization is not shown. Helicopter operations were modeled in an even percentage for arrivals/departures to or from the northeast and southwest of the helicopter pad.

**Aircraft Flight Profiles** – Standard INM departure, arrival and touch and go profiles were used to model the aircraft operations at Double Eagle II Airport.

**TABLE 9.5**

**2006 BUILD ALTERNATIVE ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Single-Engine Piston <sup>1</sup>		Multi-Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		Military C-130		Helicopter <sup>6</sup>		Grand Total		
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Departures	24.0184	3.5848	5.4692	0.8594	11.7650	1.7580	0.6846	0.0212	9.9272	1.5626	1.8632	0.2933	0.6211	0.0978	54.3487	8.1771	62.5258
Arrivals	24.0184	3.5848	5.4692	0.8594	11.7650	1.7580	0.6846	0.0212	9.9272	1.5626	1.8632	0.2933	0.6211	0.0978	54.3487	8.1771	62.5258
Touch and Go <sup>7</sup>	303.2772	-	65.4738	-	-	-	-	-	-	-	-	-	-	-	368.7510	-	368.7510
<b>Total</b>	<b>351.3140</b>	<b>7.1696</b>	<b>76.4122</b>	<b>1.7188</b>	<b>23.5300</b>	<b>3.5160</b>	<b>1.3692</b>	<b>0.0424</b>	<b>19.8544</b>	<b>3.1252</b>	<b>3.7264</b>	<b>0.5866</b>	<b>1.2422</b>	<b>0.1956</b>	<b>477.4484</b>	<b>16.3542</b>	<b>493.8026</b>

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.

**TABLE 9.6**

**2006 BUILD ALTERNATIVE RUNWAY UTILIZATION  
Double Eagle II Airport  
Master Plan Study**

<b>Runway</b>	<b>Non-Jet Aircraft Percent Utilization</b>	<b>Jet Aircraft Percent Utilization</b>
4	20%	27%
17	25%	13%
22	40%	53%
35	15%	7%
<b>Total</b>	<b>100%</b>	<b>100%</b>

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.

**TABLE 9.7**

**2006 BUILD ALTERNATIVE FIXED-WING AIRCRAFT FLIGHT TRACK UTILIZATION  
Double Eagle II Airport  
Master Plan Study**

<b>Operation Type</b>	<b>Track ID</b>	<b>Track Utilization</b>
Departure	ABQ	2%
	NE	36%
	NW	36%
	SW	24%
	SE	2%
Arrival	ABQ	2%
	NE	36%
	NW	36%
	SW	24%
	SE	2%
Touch and Go	04T1	100%
	17T1	100%
	22T1	100%
	35T1	100%

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.

TABLE 9.8

**2006 BUILD ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Departure	4	ABQ	1.7293	0.2581	0.3938	0.0619	-	-	-	-	0.9649	0.1519	0.1342	0.0211	0.0447	0.0070	3.2669	0.5000	3.7669
		NE	1.7293	0.2581	0.3938	0.0619	-	-	-	-	0.9649	0.1519	0.1342	0.0211	0.0447	0.0070	3.2669	0.5000	3.7669
		NW	1.1529	0.1721	0.2625	0.0413	-	-	-	-	0.6433	0.1013	0.0894	0.0141	0.0298	0.0047	2.1779	0.3334	2.5113
		SW	0.0961	0.0143	0.0219	0.0034	-	-	-	-	0.0536	0.0084	0.0075	0.0012	0.0025	0.0004	0.1815	0.0278	0.2093
		SE	0.0961	0.0143	0.0219	0.0034	-	-	-	-	0.0536	0.0084	0.0075	0.0012	0.0025	0.0004	0.1815	0.0278	0.2093
	17	ABQ	2.1617	0.3226	0.4922	0.0773	-	-	-	-	0.4646	0.0731	0.1677	0.0264	0.0559	0.0088	3.3421	0.5083	3.8504
		NE	2.1617	0.3226	0.4922	0.0773	-	-	-	-	0.4646	0.0731	0.1677	0.0264	0.0559	0.0088	3.3421	0.5083	3.8504
		NW	1.4411	0.2151	0.3282	0.0516	-	-	-	-	0.3097	0.0488	0.1118	0.0176	0.0373	0.0059	2.2280	0.3389	2.5669
		SW	0.1201	0.0179	0.0273	0.0043	-	-	-	-	0.0258	0.0041	0.0093	0.0015	0.0031	0.0005	0.1857	0.0282	0.2139
		SE	0.1201	0.0179	0.0273	0.0043	-	-	-	-	0.0258	0.0041	0.0093	0.0015	0.0031	0.0005	0.1857	0.0282	0.2139
	22	ABQ	3.4586	0.5162	0.7876	0.1238	-	-	-	-	1.8941	0.2981	0.2683	0.0422	0.0894	0.0141	6.4981	0.9944	7.4925
		NE	3.4586	0.5162	0.7876	0.1238	-	-	-	-	1.8941	0.2981	0.2683	0.0422	0.0894	0.0141	6.4981	0.9944	7.4925
		NW	2.3058	0.3441	0.5250	0.0825	-	-	-	-	1.2627	0.1988	0.1789	0.0282	0.0596	0.0094	4.3320	0.6630	4.9950
		SW	0.1921	0.0287	0.0438	0.0069	-	-	-	-	0.1052	0.0166	0.0149	0.0023	0.0050	0.0008	0.3610	0.0552	0.4162
		SE	0.1921	0.0287	0.0438	0.0069	-	-	-	-	0.1052	0.0166	0.0149	0.0023	0.0050	0.0008	0.3610	0.0552	0.4162
	35	ABQ	1.2970	0.1936	0.2953	0.0464	-	-	-	-	0.2502	0.0394	0.1006	0.0158	0.0335	0.0053	1.9766	0.3005	2.2771
		NE	1.2970	0.1936	0.2953	0.0464	-	-	-	-	0.2502	0.0394	0.1006	0.0158	0.0335	0.0053	1.9766	0.3005	2.2771
		NW	0.8647	0.1291	0.1969	0.0309	-	-	-	-	0.1668	0.0263	0.0671	0.0106	0.0224	0.0035	1.3178	0.2003	1.5181
		SW	0.0721	0.0108	0.0164	0.0026	-	-	-	-	0.0139	0.0022	0.0056	0.0009	0.0019	0.0003	0.1098	0.0167	0.1265
		SE	0.0721	0.0108	0.0164	0.0026	-	-	-	-	0.0139	0.0022	0.0056	0.0009	0.0019	0.0003	0.1098	0.0167	0.1265
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Arrival	4	ABQ	1.7293	0.2581	0.3938	0.0619	-	-	-	-	0.9649	0.1519	0.1342	0.0211	0.0447	0.0070	3.2669	0.5000	3.7669
		NE	1.7293	0.2581	0.3938	0.0619	-	-	-	-	0.9649	0.1519	0.1342	0.0211	0.0447	0.0070	3.2669	0.5000	3.7669
		NW	1.1529	0.1721	0.2625	0.0413	-	-	-	-	0.6433	0.1013	0.0894	0.0141	0.0298	0.0047	2.1779	0.3334	2.5113
		SW	0.0961	0.0143	0.0219	0.0034	-	-	-	-	0.0536	0.0084	0.0075	0.0012	0.0025	0.0004	0.1815	0.0278	0.2093
		SE	4.8037	0.7170	1.0938	0.1719	-	-	-	-	2.6803	0.4219	0.3726	0.0587	0.1242	0.0196	9.0747	1.3890	10.4637
	17	ABQ	2.1617	0.3226	0.4922	0.0773	-	-	-	-	0.4646	0.0731	0.1677	0.0264	0.0559	0.0088	3.3421	0.5083	3.8504
		NE	2.1617	0.3226	0.4922	0.0773	-	-	-	-	0.4646	0.0731	0.1677	0.0264	0.0559	0.0088	3.3421	0.5083	3.8504
		NW	1.4411	0.2151	0.3282	0.0516	-	-	-	-	0.3097	0.0488	0.1118	0.0176	0.0373	0.0059	2.2280	0.3389	2.5669
		SW	0.1201	0.0179	0.0273	0.0043	-	-	-	-	0.0258	0.0041	0.0093	0.0015	0.0031	0.0005	0.1857	0.0282	0.2139
		SE	6.0046	0.8962	1.3673	0.2149	-	-	-	-	1.2905	0.2031	0.4658	0.0733	0.1553	0.0245	9.2835	1.4120	10.6955
	22	ABQ	3.4586	0.5162	0.7876	0.1238	-	-	-	-	1.8941	0.2981	0.2683	0.0422	0.0894	0.0141	6.4981	0.9944	7.4925
		NE	3.4586	0.5162	0.7876	0.1238	-	-	-	-	1.8941	0.2981	0.2683	0.0422	0.0894	0.0141	6.4981	0.9944	7.4925
		NW	2.3058	0.3441	0.5250	0.0825	-	-	-	-	1.2627	0.1988	0.1789	0.0282	0.0596	0.0094	4.3320	0.6630	4.9950
		SW	0.1921	0.0287	0.0438	0.0069	-	-	-	-	0.1052	0.0166	0.0149	0.0023	0.0050	0.0008	0.3610	0.0552	0.4162
		SE	9.6074	1.4339	2.1877	0.3438	-	-	-	-	5.2614	0.8282	0.7453	0.1173	0.2484	0.0391	18.0502	2.7623	20.8125
	35	ABQ	1.2970	0.1936	0.2953	0.0464	-	-	-	-	0.2502	0.0394	0.1006	0.0158	0.0335	0.0053	1.9766	0.3005	2.2771
		NE	1.2970	0.1936	0.2953	0.0464	-	-	-	-	0.2502	0.0394	0.1006	0.0158	0.0335	0.0053	1.9766	0.3005	2.2771
		NW	0.8647	0.1291	0.1969	0.0309	-	-	-	-	0.1668	0.0263	0.0671	0.0106	0.0224	0.0035	1.3178	0.2003	1.5181
		SW	0.0721	0.0108	0.0164	0.0026	-	-	-	-	0.0139	0.0022	0.0056	0.0009	0.0019	0.0003	0.1098	0.0167	0.1265
		SE	3.6028	0.5377	0.8204	0.1289	-	-	-	-	0.6949	0.1094	0.2795	0.0440	0.0932	0.0147	5.4907	0.8347	6.3254

**TABLE 9.8 (Continued)**

**2006 BUILD ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Touch and Go <sup>7</sup>	4	04T1	60.6554	-	13.0948	-	-	-	-	-	-	-	-	-	-	-	73.7502	-	73.7502
	17	17T1	75.8193	-	16.3685	-	-	-	-	-	-	-	-	-	-	-	92.1878	-	92.1878
	22	22T1	121.3109	-	26.1895	-	-	-	-	-	-	-	-	-	-	-	147.5004	-	147.5004
	35	35T1	45.4916	-	9.8211	-	-	-	-	-	-	-	-	-	-	-	55.3127	-	55.3127
<b>Total</b>			374.8520	10.6827	81.7720	2.5610	23.5300	3.5160	1.3692	0.0424	29.5831	4.6565	5.5523	0.8740	1.8509	0.2914	518.5095	22.6241	541.1337

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.



#### **9.2.1.4 2006 Build Alternative Aircraft Noise Exposure**

Noise contours were generated with the INM for the 2006 Build Alternative. The estimated DNL 65 dBA noise contour for the 2006 Build Alternative is shown on Figure 9.6. As shown, the entire noise contour is contained within the airport boundary. The area of the contour is estimated to be 1.303 square miles. Therefore, there would be no noise-sensitive land uses with the DNL 65 dBA noise contour and no land use incompatibility would result from the operation of the airport in the 2006 Build Alternative. Although the analysis indicated that there are predicted to be no noise impacts because of the operation of the airport, the analysis considers the use of the DNL noise metric and the average person's response to noise. It is possible that some individuals in nearby communities who may be particularly sensitive to noise will consider themselves impacted from the 2006 Build Alternative nonetheless. In addition, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

#### **9.2.2 DOT Section 4(f) and U.S. DOI Section 6(f) Resources**

Publicly owned recreational properties located near Double Eagle II Airport include the City of Albuquerque open space Shooting Range Park and Petroglyph National Monument (which includes the open space area, Volcanoes, La Boca Negra Park, and Piedras Marcades).

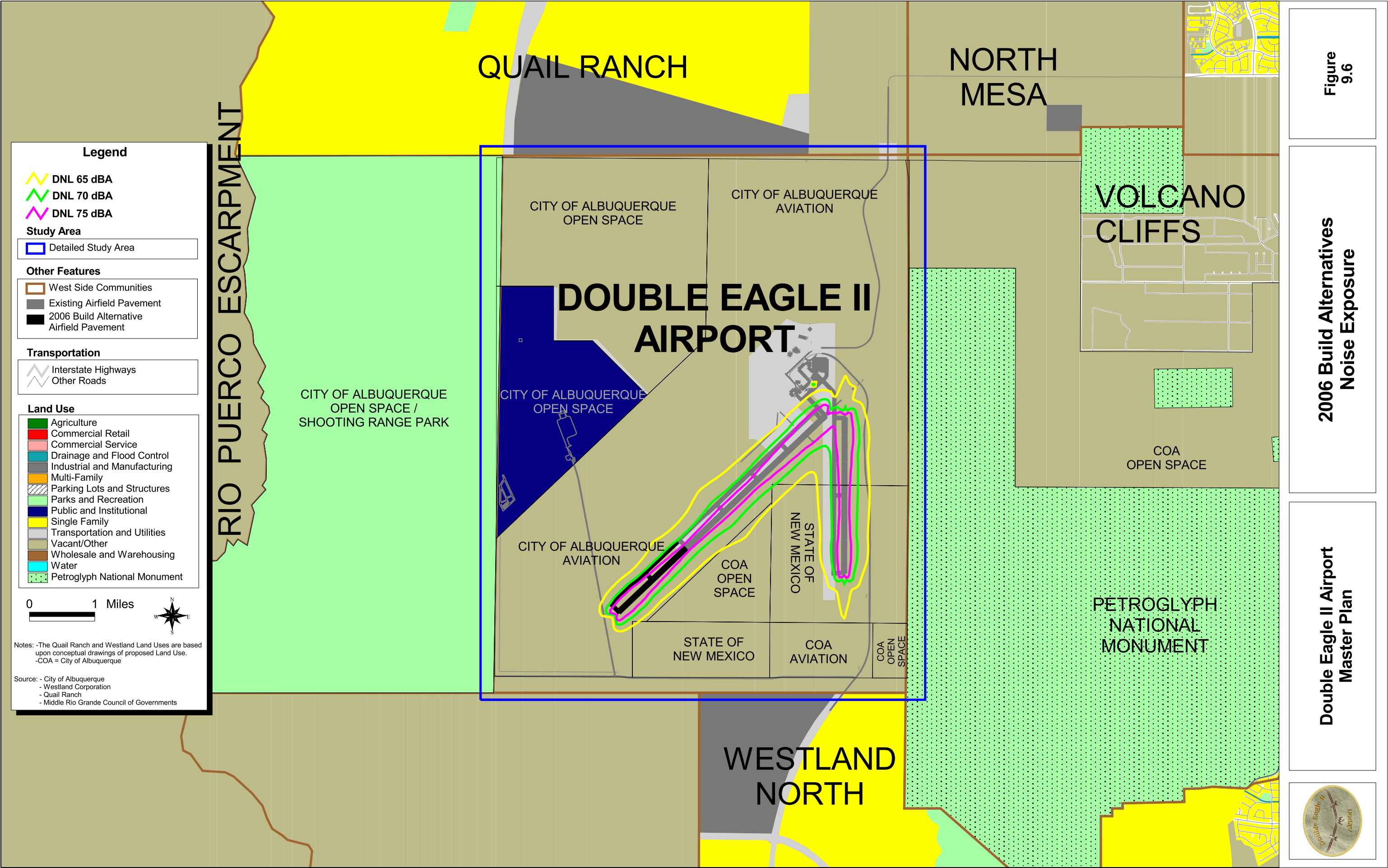
The City of Albuquerque also owns additional Open Space Trust Lands within the DSA. These lands are available for disposal or trade. The Open Space Division is currently considering a trade with the Aviation Department for the lands at the northwest corner of the DSA and the lands in a triangle shaped section of the southeast section of the DSA.

The criteria evaluated for potential impacts included permanent land acquisition (direct effect) and changes in access, visual impacts, demographic/user population, and noise (indirect effects).

Both direct and indirect effects (constructive use) are defined, for recreation sites, in Sections 9.2.2.1 and 9.2.2.2, respectively.

##### **9.2.2.1 Direct Effects**

Direct effects or "use" refers to direct physical impacts (adverse effect) to park resources, such as physical taking or acquisition of Section 4(f) or 6(f) land for incorporation into the proposed project. For example, acquiring and developing a portion of a park to build a transportation improvement would be considered a "use." Consequently, the use of the property would be changed from park and recreation use to some other use. For the purposes of evaluation, each park was evaluated to identify sites directly affected by the alternatives.



**Land Acquisition** - In determining direct effects, each park was evaluated for its proximity to the proposed airport improvements to determine whether or not property acquisition would be required. Properties located within the area of proposed acquisition, if any, as determined by this environmental analysis would be directly affected by the project. Aerial photography and Geographic Information System (GIS) base mapping combined with preliminary plan sheets for the proposed improvements were used in the analysis to determine the extent of land acquisition, if any, and the potential impacts.

#### **9.2.2.2 Indirect Effects**

Several criteria have been identified to determine indirect impacts (constructive use) to Section 4(f) and are described in the following paragraphs.

“Use” within the context of Section 4(f) includes not only actual physical taking of such lands but also indirect impacts as well. Indirect effects, termed “constructive use,” do not incorporate land from a Section 4(f) resource, but due to the proximity impacts of the project, the activities, features, or attributes of the site’s vital functions are substantially impaired. Such substantial impairment occurs only when the activities, features, or attributes of the resource are substantially diminished. For example, a significant increase in noise levels at a park due to a transportation project may represent a constructive use because the noise is loud enough to substantially impair the intended use of the park, even though the park property is not directly affected through acquisition or physical development.

The definition of constructive use adopted for this environmental analysis is based on the FAA Order 5050.4A, Paragraph 47e(7)(b), which states:

“When there is no physical taking but there is a possibility of use or of adverse impacts to Section 4(f) land, the FAA must determine if the activity associated with the proposal conflicts with or is compatible with the normal activity or aesthetic value of a public park, recreation area, refuge, or historic site. When so construed, the action would not constitute use and would not, therefore, invoke Section 4(f) of the DOT Act.”

**Noise** - FAA Land Use Compatibility Guidelines for airport noise purposes, are contained in Federal Aviation Regulation (FAR) Part 150, Appendix A, Table 1. The guidelines are used to determine acceptable noise levels over those Section 4(f) and 6(f) lands involved which are dedicated to traditional recreational uses as categorized in FAR Part 150. There are no wildlife or waterfowl refuges, national parks, or wilderness areas in the GSA that would require an evaluation of the effects of the proposed action on the natural attributes of those lands as contrasted with the reaction of people to noise in making the Section 4(f) determinations.

Therefore, for the purpose of this environmental analysis, a constructive use to Section 4(f) lands due to aircraft noise is considered not to occur when:

- Noise exposure levels due to the proposed project at Section 4(f) properties in an urban setting will not exceed the FAA Land Use Compatibility Guidelines contained in FAR Part 150; or
- Noise exposure levels with the project do not result in a DNL 1.5 dBA or greater increase within the DNL 65 dBA noise contour at noise-sensitive locations compared with noise levels without the project; or
- A determination is made through the Section 106 consultation process that the project would not have an “adverse effect” upon sites that are listed or eligible for listing on the National Register of Historic Places (NHRP) (see Section 9.2.3).

The FAA’s noise compatibility guidelines generally identify three thresholds of noise levels (with some provisions for higher levels if structures, such as recreation centers, can be soundproofed) applicable to parklands, depending on the types of activities that occur at the parks. Those levels are:

- DNL 65 dB for outdoor music areas or amphitheaters,
- DNL 70 dB for nature exhibits, zoos, nature trails or other nature areas, golf courses, riding stable, water recreation areas (swimming, boating), and outdoor sports (ballfields, tennis courts, etc.), and
- DNL 75 dB for picnic areas, open spaces, bike/walking/jogging trails, resorts and campgrounds, and recreation centers.

Following accepted FAA guidelines and methodologies, project noise levels for a variety of conditions were evaluated within each park to determine if future aircraft noise levels resulting from the proposed airfield improvements could adversely affect park visitors or activities. Noise contours projected for the future-year aircraft operations associated with the proposed airport expansion were plotted and compared with the GIS database of park locations. Modeled noise levels were compared with FAA Land Use Compatibility Guidelines to determine potential impacts. Those parks projected to experience noise levels in excess of FAA criteria were determined to be indirectly affected by the project, constituting a constructive use of the facility.

**Access** - Potential changes in vehicle access to all park facilities and pedestrian access to neighborhood parks were identified, if any, as indirect effects, constituting a constructive use of the facility.

**Visual** - Visual impacts were evaluated by comparing the existing viewsheds at each park location then comparing them with the projected viewshed with the proposed improvements. Any changes in view attributable to the proposed improvements would be identified as a potential indirect effect and constructive use of the facility.

**Vibration** - Generally, fixed-wing, subsonic aircraft do not generate vibration levels of the frequency or intensity to result in damage to structures. It has been found that exposure to normal weather conditions, such as thunder and wind; usually have greater potential to result in significant structural vibration than aircraft (FAA, 1985a). Two studies (Raba-Kistner Consultants, 1986; King, 1991) that involved the measurement of vibration levels resulting from aircraft operations upon sensitive historic structures concluded that aircraft operations do not result in significant structural vibration. Given the conclusions reached in the studies, significant vibration that has the potential to cause structural damage is not likely to result from the operation of Double Eagle II Airport, with or without airport improvements.

**Ecological** - Potential changes to biotic communities, including upland habitats and wetlands were evaluated by comparing the existing conditions and land uses with the proposed alternatives. The various types of impacts could include loss of wetlands as a result of earthwork or construction, removal of existing vegetation and revegetation with grasses, or clearing of trees and shrubs to ground level. Refer to Section 9.2.8 and 9.3.9 for impacts to Biotic Communities for all alternatives.

**User Population/Demographics** - User population and demographic effects were evaluated by noting any land acquisition of residential properties in the vicinity of each park and considering the designated functional classification of the facility (i.e., neighborhood park, community park, metropolitan park, regional park). Depending on its functional classification, any public recreation site or park that would experience a substantial impairment (change in user base, noise, access, visual impacts) of its designated use would be identified as experiencing an indirect effect, constituting a potential constructive use of the property. Further coordination with the jurisdictional agency would be required to determine whether a “use” would actually occur or not.

#### **9.2.2.3 2006 Future No Action Alternative**

There are no direct impacts associated with the 2006 Future No Action Alternative. The potential indirect impacts on Section 4(f) and Section 6(f) publicly owned lands might include periodic increase in noise and visual impacts to the area. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

#### **9.2.2.4 2006 Build Alternative**

There are no direct impacts to Section 4(f) and Section 6(f) associated with the 2006 Build Alternative. The potential indirect impacts on Section 4(f) and Section 6(f) publicly owned lands might include periodic increase in noise and visual impacts to the area. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.



### **9.2.3     Historic and Archaeological Resources**

Under separate contract, the City of Albuquerque has retained a local firm to perform an historic and archaeological analysis of the entire 4,700-acre airport site. This information will be made available by the City of Albuquerque when the analysis is complete and will be summarized within this Master Plan.

#### **9.2.3.1     2006 Future No Action Alternative**

To aid in identifying properties, the National Park Service maintains the NRHP and the State Historic Preservation Officer (SHPO) should be consulted for advice and information. Based on initial information from the Archaeological Records Management Section, there are 120 potential cultural resource sites within five kilometers of Double Eagle II Airport. A listing of registered historic sites within Bernalillo County does not show any within the DSA. However, the 2006 No Action Alternative could result in potential impacts to cultural resources including the Petroglyph National Monument. These potential impacts may include noise and visual impacts to the area, including Native American ceremonies. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

#### **9.2.3.2     2006 Build Alternative**

To aid in identifying properties, the National Park Service maintains the NRHP and the SHPO should be consulted for advice and information. Based on initial information from the Archaeological Records Management Section, there are 120 potential cultural resource sites within five kilometers of Double Eagle II Airport. A listing of registered historic sites within Bernalillo County does not show any within the DSA. The 2006 Build Alternative would not directly impact any NHRP-listed or -eligible sites. However, the 2006 Build Alternative could result in potential indirect impacts to cultural resources including the Petroglyph National Monument. These potential indirect impacts may include noise and visual impacts to the area, including Native American ceremonies. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan development.

### **9.2.4     Solid Waste**

#### **9.2.4.1     2006 Future No Action Alternative**

The No Action Alternative assumes that the proposed airside improvements would not be constructed and no associated impacts would occur. However, aircraft operations are still projected to increase at Double Eagle II Airport from 2001 to 2006. This would result in the generation of additional MSW at Double Eagle II Airport. However, this increase should be capable of being accommodated at Cerro Colorado Landfill without resulting in significant impacts to its capacity.

Existing runway ends at Double Eagle II Airport are located approximately 14 miles from the Cerro Colorado Landfill. This alternative is consistent with guidance provided in FAA AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*.

#### **9.2.4.2 2006 Build Alternative**

When compared to the No Action Alternative, the Build Alternative would increase the amount of MSW generated at Double Eagle II Airport because aircraft operations under the Build Alternative would be greater than the No Action Alternative. This increase should be capable of being accommodated at Cerro Colorado Landfill without resulting in significant impacts to its capacity.

The amount of construction debris as a result of constructing the proposed runway extension cannot be quantified at this time. However, given the amount of construction, and site conditions in the construction area, it is anticipated that the amount of debris would be minimal. This construction debris should be capable of being accommodated at the Cerro Colorado Landfill without resulting in significant impacts to the remaining landfill capacity. The generation of construction debris should be closely phased with construction activities and, therefore, should not occur all at once. This would allow the waste product to be disposed of in an orderly, planned fashion that would reduce the overall impact to the Cerro Colorado Landfill.

Based on the above information, it was concluded that although the level of MSW and construction and demolition debris generated at Double Eagle II Airport would increase for the Build Alternative when compared to the No Action Alternative, no adverse impacts are anticipated. The Cerro Colorado Landfill should have sufficient capacity to accommodate the increase. The extension of runway end 4 is also consistent with guidance provided in FAA AC 150/5200-33 because the Cerro Colorado Landfill is located approximately 14 miles from the airport.

#### **9.2.5 Water Resources**

Water resource considerations at Double Eagle II Airport include surface water quality, groundwater quality, water supply, and wastewater generation. Each of these areas has the potential to be directly or indirectly affected by development at Double Eagle II Airport. Water resources would be impacted based on increases in on-site personnel and patrons, increases in aviation traffic and maintenance operations, and changes in the airport infrastructure such as wastewater treatment systems, storm water treatment systems, water supply systems, and overall pavement coverage. Anticipated effects on water resource elements are described below with respect to the 2006 No Action and Build Alternatives. Permitting requirements are described at the end of the section.

### **9.2.5.1 2006 Future No Action Alternative**

Under the Future No Action Alternative there would be no airfield improvements, however, Eclipse Aviation and an ATCT would be operational by 2006. The medium forecast scenario is estimated to occur in the Future No Action Alternative, which would include an increase in based aircraft to 268. This comprises a 17 percent increase over the 2001 level (229 based aircraft.) Total aircraft operations at Double Eagle II Airport are estimated to increase by 37 percent during the period 2001 to 2006.

**Surface Water Quality** - The area of Double Eagle II Airport has been graded to route stormwater underneath runways through culvert crossings. Runoff from the airport is currently directed to three outfalls that lead to natural dry arroyos that eventually drain to the Rio Grande. Double Eagle II Airport operates under the City of Albuquerque Aviation Department Multi-Sector Stormwater permit for airports. Under this alternative there would be no additional impervious surfaces, therefore, no additional impacts to surface water quality would occur over the existing conditions. However, a 37 percent increase in operations is estimated to occur at Double Eagle II Airport. This increase would pose a potential impact for surface water contamination based on the increase likelihood of dripping or spilling of fuels, oils, or cleaners used to operate and maintain aircraft. However, low average precipitation and high natural infiltration rates make it unlikely that surface water contamination would be significant under this alternative. At the time of this study, an Airport Master Drainage Plan is being developed under separate contract for Double Eagle II Airport.

**Groundwater Quality** - The potential impacts to groundwater quality under this alternative includes increases in wastewater treatment through the septic leach system and the potential for increased on-site storage of fuels. Permit requirements for sewage discharge and above ground storage tanks would minimize the potential for contamination of groundwater at the site. Due to the depth of groundwater and low average precipitation volumes, it is anticipated that there would be no adverse effects to groundwater quality under the 2006 No Action Alternative.

**Water Supply** - It is anticipated that the projected increase in aircraft operations as well as passenger activity at Double Eagle II Airport would result in increased water consumption. Under this alternative, it is estimated that water demand would increase to approximately 173,400 gallons per day (gpd). A water line project is currently in the design phase that would construct water system improvements at Double Eagle II Airport capable of meeting a 286,300-gpd-peak demand. This new capacity will be capable of meeting the projected demand through 2006.

**Wastewater** - Projected increases in aircraft and passenger activity would cause a proportional increase in wastewater production. Currently, wastewater at Double Eagle II Airport is fed into an 8-inch gravity sewer from the FBO area that leads to a septic tank, effluent lift station, and drain field. The current system has an estimated capacity of 15,200 gpd. Under this alternative, it is projected that a capacity of approximately 150,700 gpd would be required. A sewer line project is currently in the design phase for sewer system improvements that would provide sewage capacity for an average daily loading of 195,700 gpd. This new capacity would be capable of meeting the projected demand through 2006.

**Permitting** - Potential permitting requirements under this alternative include NPDES construction permitting for structures associated with Eclipse Aviation and the ATCT. Stormwater discharges from the airport would be covered under the existing City of Albuquerque Airport Multi-sector NPDES permit. If NPDES permits are required for construction, then the State of New Mexico can also require Clean Water Act (CWA) Section 401 certification. There are no planned activities under this alternative that would require CWA Section 404 permitting.

#### **9.2.5.2 2006 Build Alternative**

The 2006 Build Alternative includes a 3,600-foot extension of Runway 4/22 to the southwest. This addition would comprise approximately 12.1 acres of impervious surface. It is estimated that implementation of the Build Alternative would also result in the high forecast scenario for airport activity. This implies an estimated increase in aircraft operations from 120,903 in 2001 to 180,238 operations in 2006. In addition, Eclipse Aviation and an ATCT would be operational by 2006 under the Build Alternative.

**Surface Water Quality** – The extension of Runway 4/22 under the 2006 Build Alternative would increase paved, impervious areas by approximately 12.1 acres. Primary concerns with respect to water quality would include sedimentation of runoff water during construction activities and potential washing of surface contaminants associated with use the new runway areas. Potential contaminants from runways could include spilled or dripped fuels, oils, and solvents used for operation and maintenance of aircraft. Due to low rainfall volumes in the area, surface water impact from stormwater runoff under this alternative is anticipated to be minimal. At the time of this study, an Airport Master Drainage Plan is being developed under separate contract for Double Eagle II Airport.

**Groundwater Quality** - The potential impacts to groundwater quality under the 2006 Build Alternative include increases in wastewater treatment through the septic leach system and the potential for increased on-site storage of fuels. Permit requirements for sewage discharge and above ground storage tanks would minimize the potential for contamination of groundwater at the site. Due to the depth of groundwater and low average precipitation volumes, it is anticipated that there would be no adverse impacts to groundwater quality under the 2006 Build Alternative.

**Water Supply** - Projected airport activity would increase under the 2006 Build Alternative with respect to the No Action Alternative. This is reflected by a predicted 9 percent increase in aircraft operations, industrial activity, and GA passenger activity. As such, there would be an increase in water demand over the No Action Alternative. A water line project is currently in the design phase that would construct water system improvements at Double Eagle II Airport capable of meeting the projected demand through 2006 under the Build Alternative.

**Wastewater** - Under the 2006 Build Alternative, wastewater production would be increased due to an increase in airport activity over the No Action Alternative. A sewer line project is currently in the design phase for sewer system improvements that would provide increased sewer capacity. It is anticipated that the current project would meet the forecasted wastewater production rates under the 2006 Build Alternative.

**Permitting** – The extension of Runway 4/22 under the 2006 Build Alternative would require NPDES permitting for construction activities, as the affected area will be larger than 1 acre. This would require development of a Stormwater Pollution Prevention Plan (SWPPP), and potential CWA Section 401 certification from the state. CWA Section 404 permitting requirements are not anticipated to be applicable under these alternatives. If, under the construction alternatives, modifications are made to the water supply system that allow for potable use of on-site water, then the water system would become subject to requirements of the Safe Drinking Water Act (SDWA). Addition of fuel or oil storage tanks under the 2006 Build Alternative would become subject to spill prevention and countermeasure requirements of the CWA.

#### **9.2.6 Light Emissions**

##### **9.2.6.1 2006 Future No Action Alternative**

The No Action Alternative assumes that the proposed airside improvements would not be constructed; therefore, no associated light emission impacts would occur.

##### **9.2.6.2 2006 Build Alternative**

The Build Alternative would result in airfield lighting impacts associated with the runway and taxiway extension. Navigational aids associated with Runway 4/22 would be added in conjunction with the extension of the runway. The runway would extend its high intensity runway lights, medium intensity taxiway lights, relocate or install a precision approach path indicator for Runway 4 approach, relocate runway end identifier lights, and add a supplementary lighted wind cone for Runway 4 approaches.

The area south of Double Eagle II Airport is currently undeveloped and east of the airport is the Petroglyph National Monument. Neither the Petroglyph National Monument nor residential areas located south of the airport are anticipated to be impacted by light emissions associated with the 2006 Build Alternative.



### **9.2.7     Air Quality**

The Albuquerque/Bernalillo County area is designated as maintenance area for CO and an attainment for all other criteria pollutants. A potential change in attainment status for PM<sub>10</sub> and ozone (with its precursors NO<sub>x</sub> and VOC) is possible in the next few years. However, ambient monitors near the airport have not exceeded any Ambient Air Quality Standards (AAQS). This attainment status may require the use of air quality impact analyses to comply with NEPA and CAA, general and transportation conformity requirements. The CAA requires transportation projects to be consistent with air quality management plans (i.e., the Transportation Improvement Program for the Albuquerque Metropolitan Planning Area).

New Mexico does not have applicable indirect source review requirements, thus, to determine the need for air quality analysis; the projected airport activity levels would be examined.

#### **9.2.7.1     2006 Future No Action Alternative**

Based on FAA guidelines contained in Order 5050.4A, no air quality analysis is needed for a GA airport if the levels of activity forecast in the time frame of the proposed action are less than 180,000 annual operations. The 2006 Future No Action Alternative has an activity forecast (medium forecast scenario) of 165,547; therefore, a detailed Air Quality analysis would not be required for this alternative. However, stationary source and soil disturbance permitting may be required.

#### **9.2.7.2     2006 Build Alternative**

An air quality analysis is needed for a GA airport if the levels of activity forecast in the time frame of the proposed action are less than 180,000 operations annually. The 2006 Build Alternative has an activity forecast (high forecast scenario) of 180,238; therefore, an Air Quality analysis will be required in subsequent environmental documentation.

The air quality analysis procedures would be based on Air Quality Procedures for Civilian Airports and Air Force Bases. The air quality analysis would be used to determine if the project would cause or contribute significantly to any new localized violation, increase the severity of any existing violations in non-attainment or maintenance area, or delay attainment of AAQS. This analysis should be conducted throughout the GSA. Potential air quality impacts should be evaluated through procedures developed by the FAA and EPA and in consultation with the Albuquerque Environmental Health Department (AEHD). AEHD and the New Mexico Environmental Department (NMED) would provide background monitoring data.

The FAA Emissions and Dispersion Modeling System (EDMS) is the preferred air dispersion model to assess the air quality impacts of proposed airport development projects. EDMS particularly address aviation sources, which consist of aircraft, auxiliary power units, and ground support equipment.

Additionally, stationary sources such as combustion engines, boilers, painting facilities, and fuel storage tanks and dispensing, and vehicle traffic can be accounted for in the air quality impact analyses. The ISCST3 air dispersion model is the recommended model to determine impact due to stationary sources and Mobile6/CAL3QHC is recommended for vehicle emission calculation and air quality impact analysis, respectively. A complete description of all inputs, particularly the specification of non-default data, should be included in the environmental documentation.

Air quality permitting requirements (from AEHD) may include stationary source permits (registrations, authority-to-construct, and/or operating permits) for sources such as combustion engines, boilers, painting facilities, and fuel storage tanks and dispensing. Sources with potential annual emissions of greater than 2,000 pounds would require a registration. Sources with greater than 10 pounds per hour or 25 tons per year would require an authority-to-construct permit. Additionally, soil disturbance/demolition (including unpaved roads, parking areas, and staging areas) permits may be required by the AEHD. A soil disturbance/demolition permit may be required for disturbed areas greater than 0.75-acre and to demolish of a building containing over 75,000 cubic feet of space.

#### **9.2.8 Biotic Communities**

Biotic communities in the DSA may be impacted. However, much of this area has been disturbed and wildlife is likely to be migrant within the detailed study area.

##### **9.2.8.1 2006 Future No Action Alternative**

The 2006 Future No Action Alternative would not impact areas within the existing airport property and, therefore, are not anticipated to have a significant impact on biotic communities. Increases in aircraft and vehicle traffic may increase wildlife mortality rates due to bird-strike hazard by aircraft and roadway incidents.

##### **9.2.8.2 2006 Build Alternative**

The 2006 Build Alternative airfield improvements would occur on previously disturbed airport property and, therefore, are not anticipated to result in a significant impact on biotic communities. Increases in aircraft and vehicle traffic may increase wildlife mortality rates due to bird-strike hazard by aircraft and roadway incidents. In addition, extension of the runway, taxiway, and support facilities could displace wildlife species and eliminate flora species. Additional evaluation of potential impacts would be required in subsequent environmental documents.

## **9.2.9      Threatened and Endangered Species**

### **9.2.9.1      2006 Future No Action Alternative**

The No Action Alternative would not result in direct impacts to proposed or listed threatened and endangered species in the Double Eagle II Airport DSA. Consultation with U.S. Fish and Wildlife Service (USFWS), New Mexico Game and Fish Department (NMGFD), and New Mexico Forestry and Resources Conservation Division (NMFRCD) should be initiated as part of subsequent environmental documentation to receive concurrence with this determination.

### **9.2.9.2      2006 Build Alternative**

Because of the limited habitat within the DSA, no Federally and state listed threatened and endangered plants and animals are known to inhabit or use the DSA. Threatened and endangered species are not likely to occur or may occur as transients or occasional migrants in the DSA. Therefore, there would be little potential to directly impact proposed or listed threatened and endangered species in the Double Eagle II Airport DSA. Consultation with USFWS, NMGFD, and NMFRCD should be initiated as part of subsequent environmental documentation to receive concurrence with this determination.

## **9.3              YEAR 2021 ANALYSIS**

The Future No Action Alternative and Build Alternative were analyzed in 2021 to determine if any environmental impacts would occur. Alternatives 1 and 4 were analyzed separately in the year 2021 scenario since some improvements (location of the crosswind runway, on-airport road modifications) would be unique to each alternative.

Non-impacted environmental categories in the year 2021 analysis include socioeconomics, floodplains, farmlands, hazardous materials, wild and scenic rivers, coastal zone management/coastal barriers, wetlands, and natural resources. The improvements are not anticipated to affect the socioeconomic makeup of the area. Floodplains, farmlands, hazardous materials, wild and scenic rivers, coastal zones/barriers, wetlands, and natural resources are not located within the areas of proposed improvements (see Section 4.0, Existing Environmental Condition). Therefore, there are no impacts to these areas.

Potentially impacted environmental categories, such as land use, noise, DOT Section 4(f) and U.S. DOI Section 6(f) resources, historic and archaeological resources, solid waste, light emissions, water resources, air quality, biotic communities, and threatened and endangered species are discussed below.

### **9.3.1      Noise**

#### **9.3.1.1      2021 Future No Action Alternative Aircraft Noise Analysis Inputs**

The project description and development of operations input is described in Section 4.2.5, Airport Noise. A brief description of the 2021 Future No Action Alternative inputs is as follows:

**Airport Layout** – The Future No Action Alternative airport layout, shown on Figure 9.1, is identical to the Existing Conditions layout.

**Aircraft Operations** – Similar to the Existing Conditions, a few general types of aircraft were used to model the Double Eagle II Airport aircraft fleet mix. The medium forecast scenario activity levels documented in Section 5.0, Forecasts of Aviation Demand, were used for the 2006 Future No Action Alternative. The operations were split in to day (7:00 a.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.). Table 9.9 shows the estimated annual average day operations by general aircraft type.

**Runway Use** – The 2021 Future No Action Alternative runway utilization is identical to the Existing Conditions and 2006 Future No Action Alternative runway utilization, shown in Table 9.2. The fixed-wing aircraft (and the military UH-60 helicopter) would utilize the runways at Double Eagle II Airport. The civilian helicopters would operate to and from the helicopter pad.

**Flight Tracks** – The flight tracks would be identical to the 2006 Future No Action and to those shown on Figures 4.3 through 4.5 for the Existing Scenario. The arrival and departure tracks travel to/from the northeast, Albuquerque, southeast, southwest, and northwest.

**Flight Track Utilization** – Estimated flight track use would be identical to the Existing Scenario and 2006 Future No Action Alternative flight track use. Table 9.3 shows the fixed-wing aircraft flight track utilization (only one touch and go track is associated with each runway; therefore, utilization for each is 100 percent). The arrival flight track utilizations are also shown on Figure 4.3, and the departure flight track utilizations are shown on Figure 4.4. Table 9.10 shows the number of average annual day flight operations, by flight track, for all aircraft types predicted to use Double Eagle II Airport in 2021 in the Future No Action Alternative.

Helicopter flight track utilization is not shown. Helicopter operations were modeled in an even percentage for arrivals/departures to or from the northeast and southwest of the helicopter pad.

**Aircraft Flight Profiles** – Standard INM departure, arrival and touch and go profiles were used to model the aircraft operations at Double Eagle II Airport.

**TABLE 9.9**

**2021 FUTURE NO ACTION ALTERNATIVE ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Single-Engine Piston <sup>1</sup>		Multi-Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		Military				Grand Total		
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	C-130		Helicopter <sup>6</sup>		Day	Night	Total
Departures	43.7558	6.5307	4.2526	0.6683	11.7650	1.7580	0.6846	0.0212	19.6833	3.0983	2.8334	0.4460	0.9445	0.1487	83.9192	12.6712	96.5904
Arrivals	43.7558	6.5307	4.2526	0.6683	11.7650	1.7580	0.6846	0.0212	19.6833	3.0983	2.8334	0.4460	0.9445	0.1487	83.9192	12.6712	96.5904
Touch and Go <sup>7</sup>	552.4991	-	50.9093	-	-	-	-	-	-	-	-	-	-	-	603.4084	-	603.4084
<b>Total</b>	<b>640.0107</b>	<b>13.0614</b>	<b>59.4145</b>	<b>1.3366</b>	<b>23.5300</b>	<b>3.5160</b>	<b>1.3692</b>	<b>0.0424</b>	<b>39.3666</b>	<b>6.1966</b>	<b>5.6668</b>	<b>0.8920</b>	<b>1.8890</b>	<b>0.2974</b>	<b>771.2468</b>	<b>25.3424</b>	<b>796.5892</b>

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.

TABLE 9.10

**2021 FUTURE NO ACTION ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Departure	4	ABQ	0.1750	0.0261	0.0170	0.0027	-	-	-	-	0.0787	0.0124	0.0113	0.0018	0.0038	0.0006	0.2859	0.0436	0.3294
		NE	3.1504	0.4702	0.3062	0.0481	-	-	-	-	1.4172	0.2231	0.2040	0.0321	0.0680	0.0107	5.1458	0.7842	5.9300
		NW	3.1504	0.4702	0.3062	0.0481	-	-	-	-	1.4172	0.2231	0.2040	0.0321	0.0680	0.0107	5.1458	0.7842	5.9300
		SW	2.1003	0.3135	0.2041	0.0321	-	-	-	-	0.9448	0.1487	0.1360	0.0214	0.0453	0.0071	3.4305	0.5228	3.9534
		SE	0.1750	0.0261	0.0170	0.0027	-	-	-	-	0.0787	0.0124	0.0113	0.0018	0.0038	0.0006	0.2859	0.0436	0.3294
	17	ABQ	0.2188	0.0327	0.0213	0.0033	-	-	-	-	0.0984	0.0155	0.0142	0.0022	0.0047	0.0007	0.3573	0.0545	0.4118
		NE	3.9380	0.5878	0.3827	0.0601	-	-	-	-	1.7715	0.2788	0.2550	0.0401	0.0850	0.0134	6.4323	0.9803	7.4125
		NW	3.9380	0.5878	0.3827	0.0601	-	-	-	-	1.7715	0.2788	0.2550	0.0401	0.0850	0.0134	6.4323	0.9803	7.4125
		SW	2.6253	0.3918	0.2552	0.0401	-	-	-	-	1.1810	0.1859	0.1700	0.0268	0.0567	0.0089	4.2882	0.6535	4.9417
		SE	0.2188	0.0327	0.0213	0.0033	-	-	-	-	0.0984	0.0155	0.0142	0.0022	0.0047	0.0007	0.3573	0.0545	0.4118
	22	ABQ	0.3500	0.0522	0.0340	0.0053	-	-	-	-	0.1575	0.0248	0.0227	0.0036	0.0076	0.0012	0.5718	0.0871	0.6589
		NE	6.3008	0.9404	0.6124	0.0962	-	-	-	-	2.8344	0.4462	0.4080	0.0642	0.1360	0.0214	10.2916	1.5684	11.8601
		NW	6.3008	0.9404	0.6124	0.0962	-	-	-	-	2.8344	0.4462	0.4080	0.0642	0.1360	0.0214	10.2916	1.5684	11.8601
		SW	4.2006	0.6269	0.4082	0.0642	-	-	-	-	1.8896	0.2974	0.2720	0.0428	0.0907	0.0143	6.8611	1.0456	7.9067
		SE	0.3500	0.0522	0.0340	0.0053	-	-	-	-	0.1575	0.0248	0.0227	0.0036	0.0076	0.0012	0.5718	0.0871	0.6589
	35	ABQ	0.1313	0.0196	0.0128	0.0020	-	-	-	-	0.0590	0.0093	0.0085	0.0013	0.0028	0.0004	0.2144	0.0327	0.2471
		NE	2.3628	0.3527	0.2296	0.0361	-	-	-	-	1.0629	0.1673	0.1530	0.0241	0.0510	0.0080	3.8594	0.5882	4.4475
		NW	2.3628	0.3527	0.2296	0.0361	-	-	-	-	1.0629	0.1673	0.1530	0.0241	0.0510	0.0080	3.8594	0.5882	4.4475
		SW	1.5752	0.2351	0.1531	0.0241	-	-	-	-	0.7086	0.1115	0.1020	0.0161	0.0340	0.0054	2.5729	0.3921	2.9650
		SE	0.1313	0.0196	0.0128	0.0020	-	-	-	-	0.0590	0.0093	0.0085	0.0013	0.0028	0.0004	0.2144	0.0327	0.2471
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Arrival	4	ABQ	0.1750	0.0261	0.0170	0.0027	-	-	-	-	0.0787	0.0124	0.0113	0.0018	0.0038	0.0006	0.2859	0.0436	0.3294
		NE	3.1504	0.4702	0.3062	0.0481	-	-	-	-	1.4172	0.2231	0.2040	0.0321	0.0680	0.0107	5.1458	0.7842	5.9300
		NW	3.1504	0.4702	0.3062	0.0481	-	-	-	-	1.4172	0.2231	0.2040	0.0321	0.0680	0.0107	5.1458	0.7842	5.9300
		SW	2.1003	0.3135	0.2041	0.0321	-	-	-	-	0.9448	0.1487	0.1360	0.0214	0.0453	0.0071	3.4305	0.5228	3.9534
		SE	0.1750	0.0261	0.0170	0.0027	-	-	-	-	0.0787	0.0124	0.0113	0.0018	0.0038	0.0006	0.2859	0.0436	0.3294
	17	ABQ	0.2188	0.0327	0.0213	0.0033	-	-	-	-	0.0984	0.0155	0.0142	0.0022	0.0047	0.0007	0.3573	0.0545	0.4118
		NE	3.9380	0.5878	0.3827	0.0601	-	-	-	-	1.7715	0.2788	0.2550	0.0401	0.0850	0.0134	6.4323	0.9803	7.4125
		NW	3.9380	0.5878	0.3827	0.0601	-	-	-	-	1.7715	0.2788	0.2550	0.0401	0.0850	0.0134	6.4323	0.9803	7.4125
		SW	2.6253	0.3918	0.2552	0.0401	-	-	-	-	1.1810	0.1859	0.1700	0.0268	0.0567	0.0089	4.2882	0.6535	4.9417
		SE	0.2188	0.0327	0.0213	0.0033	-	-	-	-	0.0984	0.0155	0.0142	0.0022	0.0047	0.0007	0.3573	0.0545	0.4118
	22	ABQ	0.3500	0.0522	0.0340	0.0053	-	-	-	-	0.1575	0.0248	0.0227	0.0036	0.0076	0.0012	0.5718	0.0871	0.6589
		NE	6.3008	0.9404	0.6124	0.0962	-	-	-	-	2.8344	0.4462	0.4080	0.0642	0.1360	0.0214	10.2916	1.5684	11.8601
		NW	6.3008	0.9404	0.6124	0.0962	-	-	-	-	2.8344	0.4462	0.4080	0.0642	0.1360	0.0214	10.2916	1.5684	11.8601
		SW	4.2006	0.6269	0.4082	0.0642	-	-	-	-	1.8896	0.2974	0.2720	0.0428	0.0907	0.0143	6.8611	1.0456	7.9067
		SE	0.3500	0.0522	0.0340	0.0053	-	-	-	-	0.1575	0.0248	0.0227	0.0036	0.0076	0.0012	0.5718	0.0871	0.6589

**TABLE 9.10 (Continued)**

**2021 FUTURE NO ACTION ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
	35	ABQ	0.1313	0.0196	0.0128	0.0020	-	-	-	-	0.0590	0.0093	0.0085	0.0013	0.0028	0.0004	0.2144	0.0327	0.2471
		NE	2.3628	0.3527	0.2296	0.0361	-	-	-	-	1.0629	0.1673	0.1530	0.0241	0.0510	0.0080	3.8594	0.5882	4.4475
		NW	2.3628	0.3527	0.2296	0.0361	-	-	-	-	1.0629	0.1673	0.1530	0.0241	0.0510	0.0080	3.8594	0.5882	4.4475
		SW	1.5752	0.2351	0.1531	0.0241	-	-	-	-	0.7086	0.1115	0.1020	0.0161	0.0340	0.0054	2.5729	0.3921	2.9650
		SE	0.1313	0.0196	0.0128	0.0020	-	-	-	-	0.0590	0.0093	0.0085	0.0013	0.0028	0.0004	0.2144	0.0327	0.2471
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Touch and Go <sup>7</sup>	4	04T1	110.4998	-	10.1819	-	-	-	-	-	-	-	-	-	-	-	120.6817	-	120.6817
	17	17T1	138.1248	-	12.7273	-	-	-	-	-	-	-	-	-	-	-	150.8521	-	150.8521
	22	22T1	220.9996	-	20.3637	-	-	-	-	-	-	-	-	-	-	-	241.3634	-	241.3634
	35	35T1	82.8749	-	7.6364	-	-	-	-	-	-	-	-	-	-	-	90.5113	-	90.5113
<b>Total</b>			640.0107	13.0614	59.4145	1.3366	23.5300	3.5160	1.3692	0.0424	39.3666	6.1966	5.6668	0.8920	1.8890	0.2974	771.2468	25.3424	796.5892

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.

### 9.3.1.2 2021 Future No Action Alternative Aircraft Noise Exposure

Noise contours were generated with the INM for the 2021 Future No Action Alternative. The estimated DNL 65 dBA noise contour for the 2021 Future No Action Alternative is shown on Figure 9.7. As shown, the entire noise contour is contained within the airport boundary. The area of the contour is estimated to be 1.580 square miles. Therefore, there would be no noise-sensitive land uses with the DNL 65 dBA noise contour and no land use incompatibility would result from the operation of the airport in the 2021 Future No Action Alternative. Although the analysis indicated that there are predicted to be no noise impacts because of the operation of the airport, the analysis considers the use of DNL noise metric and the average person's response to noise. It is possible that some individuals in nearby communities who may be particularly sensitive to noise will consider themselves impacted from the 2021 Future No Action Alternative nonetheless. In addition, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

### 9.3.1.3 2021 Alternative 1 Aircraft Noise Analysis Inputs

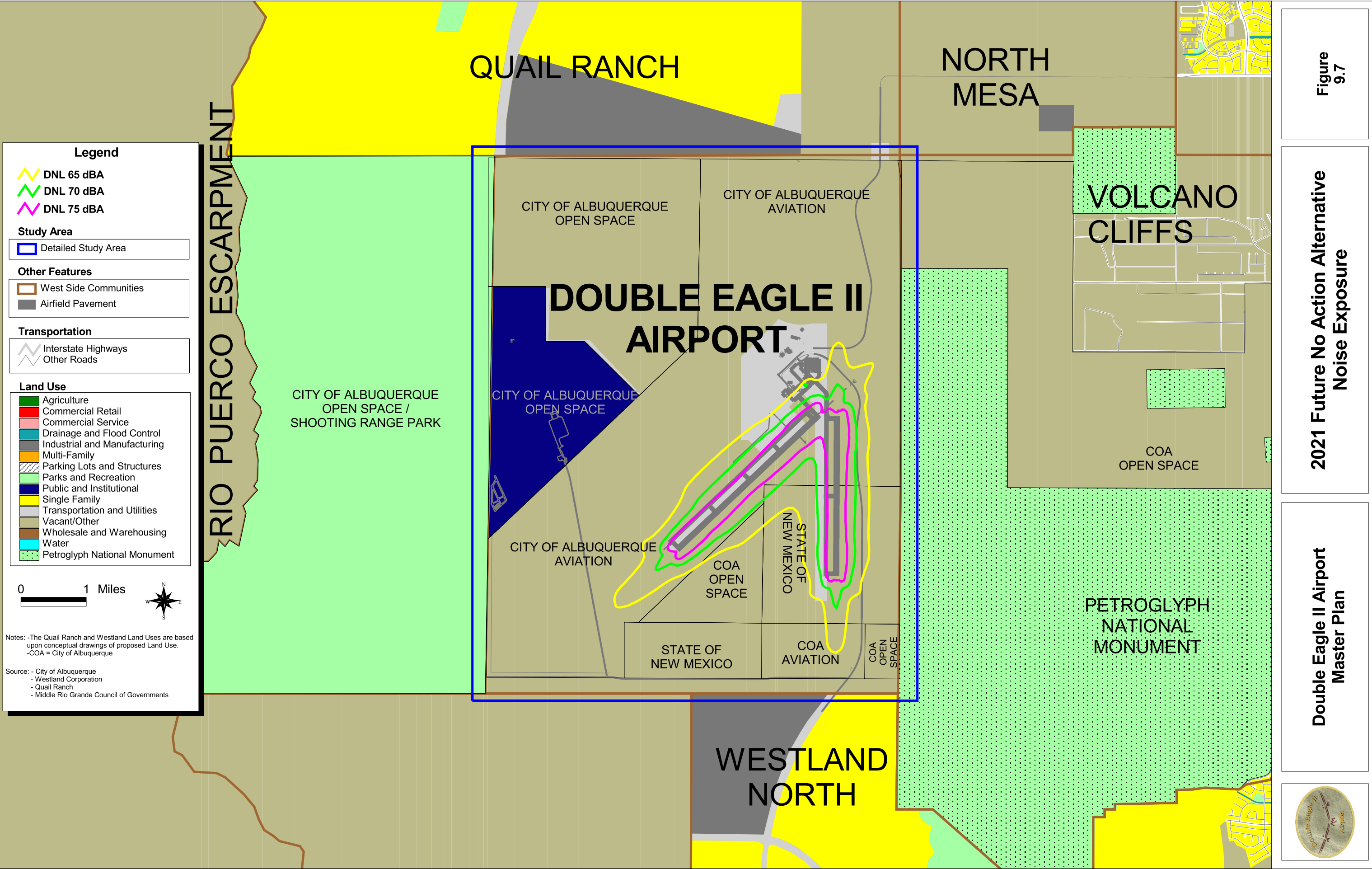
**Airport Layout** – Alternative 1 would contain extensions of the existing Runways 4/22 (by 2006) and 17/35, a parallel Runway 4L/22R, and a crosswind Runway 10/28 located in the northern portion of the airfield. The 2021 Alternative 1 airport layout is shown on Figure 9.3.

**Aircraft Operations** – Similar to the 2006 Build Alternative, a few general types of aircraft were used to model the Double Eagle II Airport aircraft fleet mix. The high forecast scenario activity levels documented in Section 5.0, Forecasts of Aviation Demand, were used for the 2021 Build Alternative. The operations were split into day (7:00 a.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.). Table 9.11 shows the estimated annual average day operations by general aircraft type.

**Runway Use** – Table 9.12 shows the estimated 2021 Build Alternative runway utilization at Double Eagle II Airport. The fixed-wing aircraft (and the military UH-60 helicopter) would utilize the runways at Double Eagle II Airport. The civilian helicopters would operate to and from the helicopter pad. Jet aircraft would be anticipated to use the Runways 4L/22R and 4R/22L for 80 percent of all operations. The single-engine piston aircraft (most "crosswind-susceptible" aircraft) would use the crosswind Runway 10/28 for 10 percent of all operations.

**Flight Tracks** – The flight tracks would be similar to those shown on Figures 4.3 through 4.5 for the Existing Scenario. The arrival and departure tracks travel to/from the northeast, Albuquerque, southeast, southwest, and northwest. The runway extensions would allow aircraft to takeoff and arrive at the extended runway endpoints to the south and southwest. The new runways would continue to operate to and from the locations shown on Figures 4.3 through 4.5.





**TABLE 9.11**

**2021 BUILD ALTERNATIVE ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Single-Engine Piston <sup>1</sup>		Multi-Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		Military				Grand Total		
											C-130		Helicopter <sup>6</sup>				
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Departures	47.1527	7.0377	10.7370	1.6872	11.7650	1.7580	0.6846	0.0212	19.4891	3.0677	2.8334	0.4460	0.9445	0.1487	93.6063	14.1665	107.7728
Arrivals	47.1527	7.0377	10.7370	1.6872	11.7650	1.7580	0.6846	0.0212	19.4891	3.0677	2.8334	0.4460	0.9445	0.1487	93.6063	14.1665	107.7728
Touch and Go <sup>7</sup>	595.3908	-	128.5376	-	-	-	-	-	-	-	-	-	-	-	723.9284	-	723.9284
<b>Total</b>	689.6962	14.0754	150.0116	3.3744	23.5300	3.5160	1.3692	0.0424	38.9782	6.1354	5.6668	0.8920	1.8890	0.2974	911.1410	28.3330	939.4740

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.

**TABLE 9.12**

**2021 BUILD ALTERNATIVE RUNWAY UTILIZATION  
Double Eagle II Airport  
Master Plan Study**

<b>Runway</b>	<b>Single-Engine Piston Aircraft Percent Utilization</b>	<b>Multi-Engine Piston Aircraft Percent Utilization</b>	<b>Jet Aircraft Percent Utilization</b>	<b>Military Aircraft Percent Utilization</b>
4L	11%	10%	14%	10%
4R	11%	10%	14%	10%
10	5%	0%	0%	0%
17	15%	25%	13%	25%
22L	22%	20%	26%	20%
22R	22%	20%	26%	20%
28	5%	0%	0%	0%
35	9%	15%	7%	15%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.

**Flight Track Utilization** – Estimated flight track use would be identical to the 2006 Build Alternative flight track use. Table 9.13 shows the fixed-wing aircraft flight track utilization (only one touch and go track is associated with each runway; therefore, utilization for each is 100 percent). The arrival flight track utilizations are also shown on Figure 4.3, and the departure flight track utilizations are shown on Figure 4.4. Table 9.14 shows the number of average annual day flight operations, by flight track, for all aircraft types that would use Double Eagle II Airport in the 2021 Build Alternative.

Helicopter flight track utilization is not shown. Helicopter operations were modeled in an even percentage for arrivals/departures to or from the northeast and southwest of the helicopter pad.

**Aircraft Flight Profiles** – Standard INM departure, arrival and touch and go profiles were used to model the aircraft operations at Double Eagle II Airport.

#### **9.3.1.4 2021 Alternative 1 Aircraft Noise Exposure**

Noise contours were generated with the INM for Alternative 1 in 2021. The estimated DNL 65 dBA noise contour for Alternative 1 in 2021 is shown on Figure 9.8. As shown, the entire noise contour would be contained within the existing airport boundary and City of Albuquerque Open Space land. In addition, a portion of the City Open Space land shown in Figure 9.8 would become Aviation Department property to accommodate the crosswind Runway 10/28. The area of the contour is estimated to be 2.437 square miles. There would be no noise-sensitive land

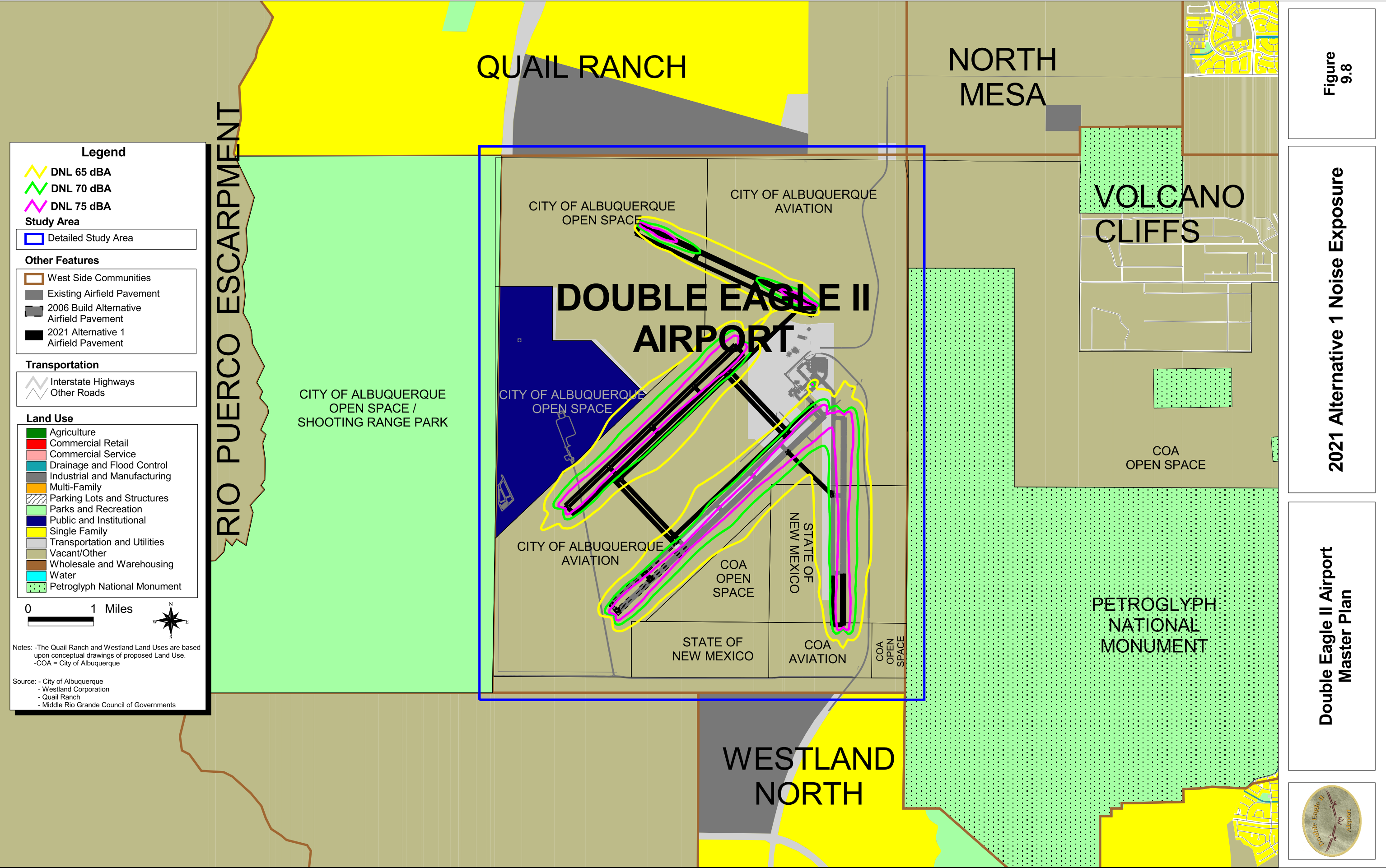
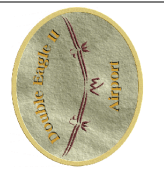


Figure 9.8

2021 Alternative 1 Noise Exposure

Double Eagle II Airport Master Plan



uses with the DNL 65 dBA noise contour and no land use incompatibility would result from the 2021 Alternative 1. Although the analysis indicated that there are predicted to be no noise impacts because of the operation of the airport, the analysis considers the use of the DNL noise metric and the average person's response to noise. It is possible that some individuals in nearby communities who may be particularly sensitive to noise will consider themselves impacted from the 2021 Alternative 1 aircraft noise exposure nonetheless. In addition, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

**TABLE 9.13**

**2021 BUILD ALTERNATIVE FIXED-WING AIRCRAFT FLIGHT TRACK UTILIZATION  
Double Eagle II Airport  
Master Plan Study**

Operation Type	Track ID	Track Utilization
Departure	ABQ	2%
	NE	36%
	NW	36%
	SW	24%
	SE	2%
Arrival	ABQ	2%
	NE	36%
	NW	36%
	SW	24%
	SE	2%
Touch and Go	04LT1	100%
	04RT1	100%
	10T1	100%
	17T1	100%
	22LT1	100%
	22RT1	100%
	28T1	100%
	35T1	100%

Source: URS Corporation, 2002.  
Double Eagle II Airport, 2001.

TABLE 9.14

**2021 BUILD ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Departure	4L	ABQ	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
		NE	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		NW	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		SW	1.2448	0.1858	0.2577	0.0405	-	-	-	-	0.6548	0.1031	0.0680	0.0107	0.0227	0.0036	2.2480	0.3436	2.5917
		SE	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
	4R	ABQ	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
		NE	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		NW	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		SW	1.2448	0.1858	0.2577	0.0405	-	-	-	-	0.6548	0.1031	0.0680	0.0107	0.0227	0.0036	2.2480	0.3436	2.5917
		SE	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
	10	ABQ	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
		NE	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
		NW	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
		SW	0.5658	0.0845	-	-	-	-	-	-	-	-	-	-	-	-	0.5658	0.0845	0.6503
		SE	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
	17	ABQ	0.1415	0.0211	0.0537	0.0084	-	-	-	-	0.0507	0.0080	0.0142	0.0022	0.0047	0.0007	0.2647	0.0405	0.3052
		NE	2.5462	0.3800	0.9663	0.1518	-	-	-	-	0.9121	0.1436	0.2550	0.0401	0.0850	0.0134	4.7647	0.7290	5.4937
		NW	2.5462	0.3800	0.9663	0.1518	-	-	-	-	0.9121	0.1436	0.2550	0.0401	0.0850	0.0134	4.7647	0.7290	5.4937
		SW	1.6975	0.2534	0.6442	0.1012	-	-	-	-	0.6081	0.0957	0.1700	0.0268	0.0567	0.0089	3.1765	0.4860	3.6624
		SE	0.1415	0.0211	0.0537	0.0084	-	-	-	-	0.0507	0.0080	0.0142	0.0022	0.0047	0.0007	0.2647	0.0405	0.3052
	22L	ABQ	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
		NE	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		NW	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		SW	2.4897	0.3716	0.5154	0.0810	-	-	-	-	1.2161	0.1914	0.1360	0.0214	0.0453	0.0071	4.4025	0.6725	5.0750
		SE	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
	22R	ABQ	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
		NE	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		NW	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		SW	2.4897	0.3716	0.5154	0.0810	-	-	-	-	1.2161	0.1914	0.1360	0.0214	0.0453	0.0071	4.4025	0.6725	5.0750
		SE	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
	28	ABQ	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
		NE	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
		NW	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
		SW	0.5658	0.0845	-	-	-	-	-	-	-	-	-	-	-	-	0.5658	0.0845	0.6503
		SE	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
	35	ABQ	0.0849	0.0127	0.0322	0.0051	-	-	-	-	0.0273	0.0043	0.0085	0.0013	0.0028	0.0004	0.1557	0.0238	0.1795
		NE	1.5277	0.2280	0.5798	0.0911	-	-	-	-	0.4911	0.0773	0.1530	0.0241	0.0510	0.0080	2.8027	0.4286	3.2312

TABLE 9.14 (Continued)

**2021 BUILD ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
Arrival		NW	1.5277	0.2280	0.5798	0.0911	-	-	-	-	0.4911	0.0773	0.1530	0.0241	0.0510	0.0080	2.8027	0.4286	3.2312
		SW	1.0185	0.1520	0.3865	0.0607	-	-	-	-	0.3274	0.0515	0.1020	0.0161	0.0340	0.0054	1.8685	0.2857	2.1542
		SE	0.0849	0.0127	0.0322	0.0051	-	-	-	-	0.0273	0.0043	0.0085	0.0013	0.0028	0.0004	0.1557	0.0238	0.1795
		Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
	4L	ABQ	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
		NE	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		NW	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		SW	1.2448	0.1858	0.2577	0.0405	-	-	-	-	0.6548	0.1031	0.0680	0.0107	0.0227	0.0036	2.2480	0.3436	2.5917
	4R	SE	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
		ABQ	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
		NE	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
		NW	1.8672	0.2787	0.3865	0.0607	-	-	-	-	0.9823	0.1546	0.1020	0.0161	0.0340	0.0054	3.3720	0.5155	3.8875
	10	SW	1.2448	0.1858	0.2577	0.0405	-	-	-	-	0.6548	0.1031	0.0680	0.0107	0.0227	0.0036	2.2480	0.3436	2.5917
		SE	0.1037	0.0155	0.0215	0.0034	-	-	-	-	0.0546	0.0086	0.0057	0.0009	0.0019	0.0003	0.1873	0.0286	0.2160
		ABQ	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
		NE	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
	17	NW	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
		SW	0.5658	0.0845	-	-	-	-	-	-	-	-	-	-	-	-	0.5658	0.0845	0.6503
		SE	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
		ABQ	0.1415	0.0211	0.0537	0.0084	-	-	-	-	0.0507	0.0080	0.0142	0.0022	0.0047	0.0007	0.2647	0.0405	0.3052
	22L	NE	2.5462	0.3800	0.9663	0.1518	-	-	-	-	0.9121	0.1436	0.2550	0.0401	0.0850	0.0134	4.7647	0.7290	5.4937
		NW	2.5462	0.3800	0.9663	0.1518	-	-	-	-	0.9121	0.1436	0.2550	0.0401	0.0850	0.0134	4.7647	0.7290	5.4937
		SW	1.6975	0.2534	0.6442	0.1012	-	-	-	-	0.6081	0.0957	0.1700	0.0268	0.0567	0.0089	3.1765	0.4860	3.6624
		SE	0.1415	0.0211	0.0537	0.0084	-	-	-	-	0.0507	0.0080	0.0142	0.0022	0.0047	0.0007	0.2647	0.0405	0.3052
	22R	ABQ	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
		NE	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		NW	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		SW	2.4897	0.3716	0.5154	0.0810	-	-	-	-	1.2161	0.1914	0.1360	0.0214	0.0453	0.0071	4.4025	0.6725	5.0750
	28	SE	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
		ABQ	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
		NE	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
		NW	3.7345	0.5574	0.7731	0.1215	-	-	-	-	1.8242	0.2871	0.2040	0.0321	0.0680	0.0107	6.6037	1.0088	7.6126
	28	SW	2.4897	0.3716	0.5154	0.0810	-	-	-	-	1.2161	0.1914	0.1360	0.0214	0.0453	0.0071	4.4025	0.6725	5.0750
		SE	0.2075	0.0310	0.0429	0.0067	-	-	-	-	0.1013	0.0160	0.0113	0.0018	0.0038	0.0006	0.3669	0.0560	0.4229
		ABQ	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
		NE	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754

TABLE 9.14 (Continued)

**2021 BUILD ALTERNATIVE MODELED ANNUAL AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE**  
**Double Eagle II Airport**  
**Master Plan Study**

Operation Type	Runway	Track ID	Single Engine Piston <sup>1</sup>		Multi Engine Piston <sup>2</sup>		Light Helicopter <sup>3</sup>		Medium Helicopter <sup>4</sup>		Business Jet <sup>5</sup>		C-130		Military Helicopter <sup>6</sup>		Grand Total		
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Total
		NW	0.8487	0.1267	-	-	-	-	-	-	-	-	-	-	-	-	0.8487	0.1267	0.9754
		SW	0.5658	0.0845	-	-	-	-	-	-	-	-	-	-	-	-	0.5658	0.0845	0.6503
		SE	0.0472	0.0070	-	-	-	-	-	-	-	-	-	-	-	-	0.0472	0.0070	0.0542
	35	ABQ	0.0849	0.0127	0.0322	0.0051	-	-	-	-	0.0273	0.0043	0.0085	0.0013	0.0028	0.0004	0.1557	0.0238	0.1795
		NE	1.5277	0.2280	0.5798	0.0911	-	-	-	-	0.4911	0.0773	0.1530	0.0241	0.0510	0.0080	2.8027	0.4286	3.2312
		NW	1.5277	0.2280	0.5798	0.0911	-	-	-	-	0.4911	0.0773	0.1530	0.0241	0.0510	0.0080	2.8027	0.4286	3.2312
		SW	1.0185	0.1520	0.3865	0.0607	-	-	-	-	0.3274	0.0515	0.1020	0.0161	0.0340	0.0054	1.8685	0.2857	2.1542
		SE	0.0849	0.0127	0.0322	0.0051	-	-	-	-	0.0273	0.0043	0.0085	0.0013	0.0028	0.0004	0.1557	0.0238	0.1795
	Helicopter Pad	HNE	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
		HSW	-	-	-	-	5.8825	0.8790	0.3423	0.0106	-	-	-	-	-	-	6.2248	0.8896	7.1144
Touch and Go <sup>7</sup>	4L	04LT1	65.4930	-	12.8538	-	-	-	-	-	-	-	-	-	-	-	78.3467	-	78.3467
	4R	04RT1	65.4930	-	12.8538	-	-	-	-	-	-	-	-	-	-	-	78.3467	-	78.3467
	10	10T1	29.7695	-	-	-	-	-	-	-	-	-	-	-	-	-	29.7695	-	29.7695
	17	17T1	89.3086	-	32.1344	-	-	-	-	-	-	-	-	-	-	-	121.4430	-	121.4430
	22L	22LT1	130.9860	-	25.7075	-	-	-	-	-	-	-	-	-	-	-	156.6935	-	156.6935
	22R	22RT1	130.9860	-	25.7075	-	-	-	-	-	-	-	-	-	-	-	156.6935	-	156.6935
	28	28T1	29.7695	-	-	-	-	-	-	-	-	-	-	-	-	-	29.7695	-	29.7695
<b>Total</b>			689.6962	14.0754	150.0116	3.3744	23.5300	3.5160	1.3692	0.0424	38.9782	6.1354	5.6668	0.8920	1.8890	0.2974	911.1410	28.3330	939.4740

<sup>1</sup> Modeled as: GASEPV (General Aviation, Single-Engine, Pitch Variable).

<sup>2</sup> Modeled as: BEC58P.

<sup>3</sup> Modeled as: Bell 206L.

<sup>4</sup> Modeled as: Bell 222.

<sup>5</sup> Modeled as: Lear 35.

<sup>6</sup> Modeled as: S70 (UH-60A).

<sup>7</sup> Touch and Go counted as two operations.

Day = 7:00 a.m. to 10:00 p.m.

Night = 10:00 p.m. to 7:00 a.m.

Source: URS Corporation, 2002.



### **9.3.1.5 2021 Alternative 4 Aircraft Noise Analysis Inputs**

In 2021, Alternative 4 would contain extensions of the existing Runways 4/22 (by 2006) and 17/35, a parallel Runway 4L/22R, and a crosswind Runway 10/28 located in the southern portion of the airfield. The 2021 Alternative 4 airport layout is shown on Figure 9.4.

All other inputs to the 2021 Alternative 4 aircraft exposure analysis is identical to that used for the 2021 Alternative 1 analysis. Operational inputs for the 2021 Alternative 4 analysis are shown in Tables 9.11 through 9.14.

### **9.3.1.6 2021 Alternative 4 Aircraft Noise Exposure**

Noise contours were generated with the INM for the 2021 Alternative 4. The estimated DNL 65 dBA noise contour for the 2021 Alternative 4 is shown on Figure 9.9. As shown, the entire noise contour would be contained within the existing airport boundary, City of Albuquerque Open Space, and Wetland North. Property acquisition of land to the south (vacant and industrial land uses owned by Westland Development Corp.) would be required to accommodate the southern location of the crosswind Runway 10/28. The area of the contour is estimated to be 2.420 square miles. There would be no noise-sensitive land uses with the DNL 65 dBA noise contour and no land use incompatibility would result from the 2021 Alternative 4. Although the analysis indicated that there are predicted to be no noise impacts because of the operation of the airport, the analysis considers the use of the DNL noise metric and the average person's response to noise. It is possible that some individuals in nearby communities who may be particularly sensitive to noise will consider themselves impacted from the 2021 Alternative 4 aircraft noise exposure nonetheless. In addition, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

## **9.3.2 Land Use**

### **9.3.2.1 Future No Action Alternative**

The compatibility of existing and planned land uses near Double Eagle II Airport can be associated with the extent of the noise impacts. The entire DNL 65 dBA noise contour would be contained within the airport boundary. Therefore, there would be no land use incompatibility resulting from the operation of the airport in the 2021 Future No Action Alternative.

The No Action Alternative would not require the acquisition of any off-airport property; therefore direct land use impacts are not associated with this alternative.

### **9.3.2.2 2021 Alternative 1**

The compatibility of existing and planned land uses near Double Eagle II Airport can be associated with the extent of the noise impacts and property acquisition. Under this alternative,

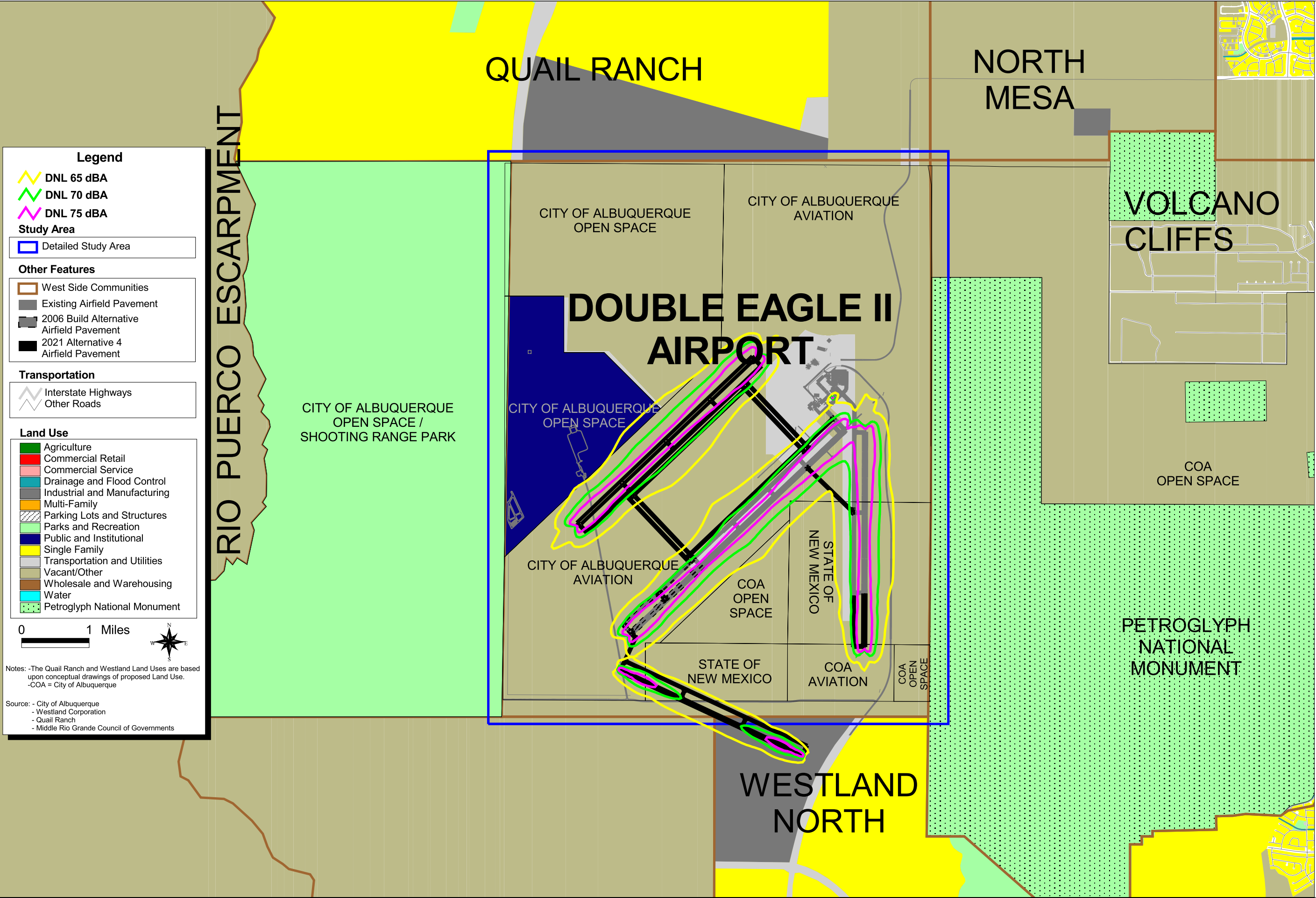


Figure 9.9

2021 Alternative 4 Noise Exposure

Double Eagle II Airport Master Plan



the entire noise contour would be contained within compatible land uses (both on-airport and off-airport). Therefore, there would be no land use incompatibility resulting from the operation of the airport in the 2021 Alternative 1.

The northern location of crosswind Runway 10/28 associated with Alternative 1 would require the acquisition and conversion of approximately 253 acres of City of Albuquerque Open Space to airport property. The estimated acquisition area does not take into account the proposed property exchanges to accommodate Eclipse Aviation (discussed in Section 8.0, Airport Alternatives Analysis).

The City of Albuquerque, as owner and operator of Double Eagle II Airport should provide assurance that the airport will continue to be in compliance with 49 U.S.C. 47107(a)(10) (Airports and Airway Safety Capacity, Noise Improvement, and Intermodal Transportation Act of 1992). This assurance relates to existing and planned land use adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. This land use assurance will be required in subsequent environmental documentation.

#### **9.3.2.3 2021 Alternative 4**

Under this alternative, the entire noise contour would be contained within compatible land uses (both on-airport and off-airport). Therefore, there would be no land use incompatibility resulting from the operation of the airport in the 2021 Alternative 4.

The southern location of crosswind Runway 10/28 associated with Alternative 4 would require the acquisition and conversion of approximately 361 acres of State of New Mexico and Westland North land adjacent to existing airport property. The estimated acquisition area does not take into account the proposed property exchanges to accommodate Eclipse Aviation (documented in Section 8.0, Airport Alternatives Analysis).

As explained previously, the City of Albuquerque, as owner and operator of Double Eagle II Airport should provide assurance that the airport will continue to be in compliance with 49 U.S.C. 47107(a)(10).

### **9.3.3 DOT Section 4(f) and U.S. DOI Section 6(f) Resources**

#### **9.3.3.1 2021 Future No Action Alternative**

There are no direct impacts associated with the 2021 Future No Action Alternative. The potential indirect impacts on Section 4(f) and Section 6(f) publicly owned lands might include periodic noise and visual impacts to the area. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

### **9.3.3.2 2021 Alternative 1**

There are no direct impacts associated with the 2021 Alternative 1. The potential indirect impacts on Section 4(f) and Section 6(f) publicly owned lands might include periodic noise and visual impacts to the area. The 2021 Alternative 1 and the northern location of crosswind Runway 10/28 may disrupt the Petroglyph National Monument greater than the 2021 Alternative 4.

The northern location of proposed Runway 10/28 associated with Alternative 1 is aligned toward the Petroglyph National Monument. Aircraft operations at Double Eagle II Airport would have the potential to impact the Petroglyph National Monument and also indirectly impact the user population/demographics through increased noise and visual disturbance. Other indirect impacts such as vibration and ecological impacts are not expected to occur. Analyses of the potential visual impacts and user population/demographics could be conducted as part of a more detailed Environmental Assessment on the proposed Master Plan developments.

### **9.3.3.3 2021 Alternative 4**

There are no direct impacts associated with the 2021 Alternative 4. The potential indirect impacts on Section 4(f) and Section 6(f) publicly owned lands might include periodic noise and visual impacts to the social enjoyment of the area. The 2021 Alternative 4 and the southern location of crosswind Runway 10/28 may disrupt the Petroglyph National Monument but at a lesser degree than the 2021 Alternative 1.

The southern location of proposed Runway 10/28 associated with Alternative 4 is also aligned toward the Petroglyph National Monument. As stated in Section 9.3.3.2, aircraft operations at Double Eagle II Airport would have the potential to impact the Petroglyph National Monument and indirectly impact the user population/demographics through increased noise and visual disturbance, while other indirect impacts such as vibration and ecological impacts are not expected to occur. However, Alternative 4 noise, visual, and user population/demographic impacts are anticipated to be less than the indirect impacts associated with Alternative 1. This would be due to lesser potential for aircraft operations over the Petroglyph National Monument. Analyses of the potential noise and visual impacts and user population/ demographics could be conducted as part of a more detailed EA on the proposed Master Plan developments.

## **9.3.4 Historic and Archaeological Resources**

Under separate contract, the City of Albuquerque has retained a local firm to perform an historic and archaeological analysis of the entire 4,700-acre airport site. The City of Albuquerque will make this information available when the analysis is complete and will be summarized within this Master Plan.

To aid in identifying properties, the National Park Service maintains the NRHP and the SHPO should be consulted for advice and information. Based on initial information from the Archaeological Records Management Section, there are 120 potential cultural resource sites within 5 kilometers of Double Eagle II Airport.

#### **9.3.4.1 2021 Future No Action Alternative**

A listing of registered historic sites within Bernalillo County does not show any within the DSA. However, the 2021 No Action Alternative could result in potential impacts to cultural resources including the Petroglyph National Monument. These potential impacts may include noise and visual impacts to the area, including Native American ceremonies. In addition, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

#### **9.3.4.2 2021 Alternative 1**

A listing of registered historic sites within Bernalillo County does not show any within the DSA. The 2021 Alternative 1 would not directly impact any NRHP-listed or -eligible site. Under Alternative 1, there are potential indirect impacts on the cultural resources including the Petroglyph National Monument. These potential indirect impacts may include noise and visual impacts to the area, including Native American ceremonies.

The northern location of proposed Runway 10/28 associated with Alternative 1 is aligned toward the Petroglyph National Monument. Aircraft operations at Double Eagle II Airport would have the potential to impact the Petroglyph National Monument. Analyses of the potential indirect impacts could be conducted as part of a more detailed EA on the proposed Master Plan developments.

#### **9.3.4.3 2021 Alternative 4**

The 2021 Alternative 4 would not directly impact any NHRP-listed or -eligible site. A listing of registered historic sites within Bernalillo County does not show any within the DSA. Under Alternative 4, there are potential indirect impacts to cultural resources including the Petroglyph National Monument. These potential indirect impacts may include noise and visual impacts to the area, including Native American ceremonies.

The southern location of proposed Runway 10/28 associated with Alternative 4 is also aligned toward the Petroglyph National Monument. As stated in Section 9.3.4.2, aircraft operations at Double Eagle II Airport would have the potential to impact the Petroglyph National Monument. However, Alternative 4 impacts are anticipated to be less than the indirect impacts associated with Alternative 1. This would be due to lesser potential for aircraft operations over the Petroglyph National Monument. Analyses of the potential indirect impacts could be conducted as part of a more detailed EA on the proposed Master Plan developments.

### **9.3.5      Solid Waste**

#### **9.3.5.1      2021 Future No Action Alternative**

The No Action Alternative assumes that the proposed airside improvements would not be constructed and no associated impacts would occur. However, aircraft operations are still projected to increase at Double Eagle II Airport from 2006 to 2021. This would result in the generation of additional MSW at Double Eagle II Airport. However, this increase should be capable of being accommodated at Cerro Colorado Landfill without resulting in significant impacts to its capacity.

The No Action Alternative assumes that the proposed airside improvements would not be constructed and no associated construction impacts would occur. Its implementation would not result in the generation of construction or demolition debris that would require disposal in a landfill, with the exception of waste material from normal maintenance activities. Runway ends of the No Action Alternative are also consistent with guidance provided in FAA AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*, because the Cerro Colorado Landfill is located approximately 14 miles from the airport.

#### **9.3.5.2      2021 Alternative 1**

When compared to the No Action Alternative, Alternative 1 would increase the amount of MSW generated at Double Eagle II Airport because aircraft operations under Alternative 1 would be greater than the No Action Alternative. This increase should be capable of being accommodated at Cerro Colorado Landfill without resulting in significant impacts to its capacity.

The amount of construction debris as a result of constructing the proposed runways and extension of Runway 35 cannot be quantified at this time. However, given the amount of construction, and site conditions in the construction area, it is anticipated that the amount of debris would be minimal. The generation of construction debris should be closely phased with construction activities and, therefore, should not occur all at once. This would allow the waste product to be disposed of in an orderly, planned fashion that would reduce the overall impact to the Cerro Colorado Landfill.

Based on the above information, it was concluded that although the level of MSW and construction and demolition debris generated at Double Eagle II Airport would increase for Alternative 1 when compared to the No Action Alternative, no adverse impacts are anticipated. The Cerro Colorado Landfill should have sufficient capacity to accommodate the increase. Runway ends of Alternative 1 are also consistent with guidance provided in FAA AC 150/5200-33 because the Cerro Colorado Landfill is located approximately 14 miles from the airport.

### **9.3.5.3 2021 Alternative 4**

When compared to the No Action Alternative, Alternative 4 would increase the amount of MSW generated at Double Eagle II Airport because aircraft operations under Alternative 4 would be greater than the No Action Alternative. This increase should be capable of being accommodated at Cerro Colorado Landfill without resulting in significant impacts to its capacity. In addition, when compared to Alternative 1 the amount of MSW generated at Double Eagle II Airport under Alternative 4 would remain the same because the number of operations for each alternative would be equal.

The amount of construction debris as a result of constructing the proposed runways and extension of Runway 35 cannot be quantified at this time. However, given the amount of construction, and site conditions in the construction area, it is anticipated that the amount of debris would be minimal. The generation of construction debris should be closely phased with construction activities and, therefore, should not occur all at once. This would allow the waste product to be disposed of in an orderly, planned fashion that would reduce the overall impact to the Cerro Colorado Landfill.

Based on the above information, it was concluded that although the level of MSW and construction and demolition debris generated at Double Eagle II Airport would increase for Alternative 4 when compared to the No Action Alternative, no adverse impacts are anticipated. The Cerro Colorado Landfill should have sufficient capacity to accommodate the increase. Runway ends of Alternative 4 are also consistent with guidance provided in FAA AC 150/5200-33 because the Cerro Colorado Landfill is located approximately 14 miles from the airport.

### **9.3.6 Water Resources**

Water resource considerations at Double Eagle II Airport include surface water quality, groundwater quality, water supply, and wastewater generation. Each of these areas has the potential to be directly or indirectly affected by development at Double Eagle II Airport. Water resources would be impacted based on increases in on-site workforce and patrons, increases in aviation traffic and maintenance operations, and changes in the airport infrastructure such as wastewater treatment systems, storm water treatment systems, water supply systems, and overall pavement coverage. Anticipated effects on water resource elements are described below with respect to each of the 2021 alternatives. Permitting requirements are described at the end of the section.

#### **9.3.6.1 2021 Future No Action Alternative**

It is estimated that under the Future No Action Alternative, aircraft activity would increase to 290,755 annual operations by 2021, which would represent a 140 percent increase over 2001 levels. This increase represents the medium forecast scenario.

**Surface Water Quality** - Runoff from the airport is currently directed to three outfalls that lead to natural dry arroyos that eventually drain to the Rio Grande. Stormwater permitting is currently covered under the City of Albuquerque Aviation Department Multi-Sector Stormwater permit for airports. Under this alternative, a 140 percent increase over 2001 aircraft operational activity is estimated. This increase would pose a potential impact to surface water quality based on the increased likelihood of dripping or spilling of fuels, oils, or cleaners used to operate and maintain aircraft. However, low average precipitation and high natural infiltration rates make it unlikely that surface water quality impacts would be significant under this alternative.

**Groundwater Quality** - The potential impacts to groundwater quality under this alternative includes increases in wastewater treatment through the septic leach system and the potential for increased on-site storage of fuels. Permit requirements for sewage discharge and above ground storage tanks would minimize the potential for contamination of groundwater at the site. Due to the depth of groundwater and low average precipitation volumes, it is anticipated that there would be no adverse effects to groundwater quality under the 2021 No Action Alternative.

**Water Supply** - Projected airport activity would increase under the 2021 Future No Action Alternative by 140 percent over 2001 activity. As such, there would be an increase in water demand due to increased aircraft operations, industrial activity, and GA passenger activity. A water line project is currently in the design phase that would construct water system improvements at Double Eagle II Airport capable of meeting the projected demand through 2006. It is estimated that additional water supply capacity would be required to meet demand projected for 2021 under the Future No Action Alternative.

**Wastewater** - Under the 2021 Future No Action Alternative, wastewater production would increase due to the projected increase in aircraft operations, industrial operations, and GA passenger activity. A sewer line project is currently in the design phase for sewer system improvements that would provide increased sewer capacity. It is anticipated that the current project would meet the forecasted wastewater production rates under the 2006 Build Alternative, but that additional capacity would be required to meet 2021 projections.

**Permitting** - After 2006, there are no planned activities under the No Action Alternative that would initiate further permitting requirements with respect to the water resource areas discussed.

#### **9.3.6.2 2021 Alternative 1**

The 2021 Alternative 1 includes additional development including a 7,500-foot crosswind runway designated 10/28, a 9,000-foot parallel runway located adjacent to Runway 4/22, a 2,000-foot extension to Runway 35, taxiways and lighting for the new and extended runways, construction of roads at the airport, and a modification to the airport access road. An estimated 102.5 acres of impervious surface would be added to Double Eagle II Airport because of the airfield improvements. In addition, this alternative would include the high forecast scenario (an increase of 184 percent).



**Surface Water Quality** - Under Alternative 1, there would be changes to the development level of the DSA. Additional new runways, an extended runway, and taxiways would add approximately 102.5 acres of paved, impervious surfaces at the airport. Increases in airport activity would pose a potential impact to surface water quality based on the increased likelihood of dripping or spilling of fuels, oils, or cleaners used to operate and maintain aircraft. Additional facilities would likely be needed to route and treat stormwater runoff from the airport such that the requirements of the Multi-Sector Stormwater permit are met.

**Groundwater Quality** - The potential impacts to groundwater quality under this alternative includes the potential for increased on-site storage of fuels, oils, and cleaners. The degree of activity generated by this alternative may require the development of on-site wastewater treatment or connection to the City of Albuquerque sanitary sewer system. Development of stormwater retention ponds may result in transport of surface contaminants to groundwater, however, due to the depth of groundwater and low average precipitation volumes, it is anticipated that there would be no adverse impacts to groundwater quality under this alternative.

**Water Supply** - It is estimated that aircraft operations would increase over the 2021 No Action Alternative levels. As such, there would be an increase in water demand due to increased aircraft operations, industrial activity, and GA passenger activity. A water line project is currently in the design phase that would construct water system improvements at Double Eagle II Airport capable of meeting the projected demand through 2006. It is estimated that additional water supply capacity would be required to meet demand projected for 2021 under this alternative.

**Wastewater** - Under the 2021 Build Alternative 1, wastewater production would be increased when compared to the No Action Alternative due to the projected increase in aircraft operations, industrial operations, and GA passenger activity. A sewer line project is currently in the design phase for sewer system improvements that would provide increased sewer capacity. It is anticipated that the current project would meet the forecasted wastewater production rates under the 2006 Build Alternative, but additional capacity would be required to meet 2021 projections.

**Permitting** - Construction of additional runways and roads would require NPDES construction permitting. This would require development of a SWPPP, and potential CWA Section 401 certification from the state. CWA Section 404 permitting requirements are not anticipated to be applicable under the alternative. If modifications are made to the water supply system that allow for potable use of on-site water, then the water system would become subject to requirements of the SDWA. Addition of fuel or oil storage tanks under this alternative would become subject to spill prevention and countermeasure requirements of the CWA.

### 9.3.6.3 2021 Alternative 4

The 2021 Alternative 4 includes the same elements as the 2021 Alternative 1. The difference is the proposed southern location of the new 7,500-foot crosswind runway, and on-site roadway alignments. An estimated 100.2 acres of impervious surface would be added to Double Eagle II Airport because of the airfield improvements. The 2021 Alternative 4 is also presumed to result in the high forecast scenario (an increase of 184 percent).

**Surface Water Quality** - Under the 2021 Alternative 4, there would be changes to the development level of the DSA. Additional new runways, an extended runway, and taxiways would add approximately 100.2 acres of paved, impervious surfaces at the airport. Increases in airport activity would pose a potential impact to surface water quality based on the increased likelihood of dripping or spilling of fuels, oils, or cleaners used to operate and maintain aircraft. Additional facilities would likely be needed to route and treat stormwater runoff from the airport such that the requirements of the Multi-Sector Stormwater permit are met.

**Groundwater Quality** - The potential impacts to groundwater quality under this alternative includes the potential for increased on-site storage of fuels, oils, and cleaners. The degree of activity generated by this alternative may require the development of on-site wastewater treatment or connection to the City of Albuquerque sanitary sewer system. Development of stormwater retention ponds may result in transport of surface contaminants to groundwater, however, due to the depth of groundwater and low average precipitation volumes, it is anticipated that there would be no adverse impacts to groundwater quality under this alternative.

**Water Supply** - It is estimated that aircraft operations would increase over the 2021 No Action Alternative activity and be the same as the 2021 Alternative 1 activity level. As such, there would be an increase in water demand due to increased aircraft operations, industrial activity, and GA passenger activity. A water line project is currently in the design phase that would construct water system improvements at Double Eagle II Airport capable of meeting the projected demand through 2006. It is estimated that additional water supply capacity would be required to meet demand projected for 2021 under this alternative.

**Wastewater** - Under the 2021 Alternative 4, wastewater production would be increased when compared to the No Action Alternative due to the projected increase in aircraft operations, industrial operations, and GA passenger activity. A sewer line project is currently in the design phase for sewer system improvements that would provide increased sewer capacity. It is anticipated that the current project would meet the forecasted wastewater production rates under the 2006 Build Alternative, but additional capacity would be required to meet 2021 projections.

**Permitting** - Construction of additional runways and roads would require NPDES construction permitting. This would require development of a SWPPP, and potential CWA Section 401 certification from the state. CWA Section 404 permitting requirements are not anticipated to be applicable under this alternative. If modifications are made to the water supply system that allow for potable use of on-site water, then the water system would become subject to requirements of the SDWA. Addition of fuel or oil storage tanks under this alternative would become subject to spill prevention and countermeasure requirements of the CWA.

### **9.3.7 Light Emissions**

#### **9.3.7.1 2021 Future No Action Alternative**

No Action Alternative assumes that the proposed airside improvements would not be constructed; therefore, no associated light emission impacts would occur.

#### **9.3.7.2 2021 Alternative 1**

Alternative 1 would result in airfield lighting associated with the proposed new runways, extended runway, and taxiways. According to Section 6.10, Summary of Airside Facility Requirements, of this document, Runway 4L/22R and Runway 10/28 would be equipped with new high intensity runway lights, medium intensity taxiway lights, precision approach path indicators, runway end identifier lights and lighted wind cones. The extension of Runway 17/35 to the south would require additional runway and taxiway lighting. Under Alternative 1, both new runways and the extended runway would remain on airport property and would not significantly impact any light sensitive land uses such as the Petroglyph National Monument.

#### **9.3.7.3 2021 Alternative 4**

Alternative 4 would result in airfield lighting associated with the proposed new runways, extended runway, and taxiways. According to Section 6.10 of this document, Runway 4L/22R and Runway 10/28 would be equipped with new high intensity runway lights, medium intensity taxiway lights, precision approach path indicators, runway end identifier lights and lighted wind cones. Runway 4L/22R and the extended Runway 17/35 would remain on airport property and would not significantly impact any light sensitive land uses. Under Alternative 4, Runway 10/28 has the potential to impact light sensitive land use (residential) located southeast of Runway 28 end.

### **9.3.8      Air Quality**

FAA Orders 1050.1D and 5050.4A outline the process for determining whether airport-related improvement projects require an air quality analysis under NEPA and, if so, the necessary content, and degree of analysis. According to these guidelines, an air emissions inventory must be performed if annual enplanements exceed 1.3 million passengers and/or GA operations are greater than 180,000 annually. Based on this criterion and in accordance with the FAA guidelines, an air emissions inventory for Double Eagle II Airport should be conducted for existing and future-year conditions, both with and without the proposed projects through subsequent environmental documentation.

In environmental documentation “operational” emissions inventory would represent a compilation of air emissions generated by all individual sources at Double Eagle II Airport (e.g., aircraft, ground support equipment, motor vehicles, and fuel facilities) for each alternative (including the No Action Alternative) and future-year activity level forecasts. Project-related “construction emissions” would also be computed as part of the emissions inventory.

Consistent with FAA guidelines for conducting airport-related air quality analyses, the latest version of the FAA Emissions and Dispersion Modeling System (EDMS) should be used to compute the Double Eagle II Airport emissions inventory. The most important of these data sources, assumptions, and other EDMS input selections used are aircraft, ground service equipment, motor vehicles, and other sources. These analyses could be conducted as part of a more detailed EA on the proposed Master Plan developments.

#### **9.3.8.1      2021 Future No Action Alternative**

Total air emissions associated with the 2021 No Action Alternative have the potential to increase when compared to existing conditions due to the increase in operations. The 2021 Future No Action Alternative has an activity forecast (medium forecast scenario) of 290,755 operations. In addition, since there are no improvements associated with the No Action Alternative, there would be no construction-related emissions.

#### **9.3.8.2      2021 Alternative 1**

Operational air emissions associated with Alternative 1 have the potential to increase when compared to the 2021 No Action Alternative. This change would be attributable to the forecasted increase in operations associated with this alternative. The 2021 Alternative 1 has an activity forecast (high forecast scenario) of 342,908 operations. Therefore, air quality modeling (EDMS) would be required in subsequent environmental documentation.

Construction-related emissions for Alternative 1 would be greater than the No Action Alternative because construction of Alternative 1 would occur. This would also have to be factored into the air quality monitoring in order to make a determination of General Conformity.

#### **9.3.8.3 2021 Alternative 4**

Operational air emissions associated with Alternative 4 would be the same as Alternative 1 because the number of future operations would be equal. In addition, construction-related emissions for Alternative 4 would be equal to Alternative 1. As with Alternative 1, air quality modeling would be required in subsequent environmental documentation to make a determination of General Conformity.

#### **9.3.9 Biotic Communities**

##### **9.3.9.1 2021 Future No Action Alternative**

The 2021 Future No Action Alternative assumes that no runway or other improvements would be developed at Double Eagle II Airport; therefore, no significant impacts on biotic communities are anticipated. Increases in aircraft and vehicle traffic may increase wildlife mortality rates due to bird-strike hazard by aircraft and roadway incidents.

##### **9.3.9.2 2021 Alternative 1**

The 2021 Alternative 1 would primarily impact desert scrub and shortgrass prairies on airport property; however, the proposed runways, runway extension, access roads, taxiways, and increase in activity levels may have an impact on biotic communities. Increases in aircraft and vehicle traffic may increase wildlife mortality rates due to bird-strike hazard by aircraft and roadway incidents. In addition, proposed new runways, runway extension, taxiways, and support facilities could displace wildlife species and eliminate flora species. Additional evaluation of potential impacts would be required in subsequent environmental documents.

##### **9.3.9.3 2021 Alternative 4**

The 2021 Alternative 4 would primarily impact desert scrub and shortgrass prairies on airport property; however, the proposed runways, runway extension, access roads, taxiways, and increase in activity levels may have an impact on biotic communities. Increases in aircraft and vehicle traffic may increase wildlife mortality rates due to bird-strike hazard by aircraft and roadway incidents. In addition, proposed new runways, runway extension, taxiways, and support facilities could displace wildlife species and eliminate flora species. Additional evaluation of potential impacts would be required in subsequent environmental documents.

### **9.3.10 Threatened and Endangered Species**

#### **9.3.10.1 2021 Future No Action Alternative**

There would be no direct impacts to proposed or listed threatened and endangered species in the Double Eagle II Airport DSA. Consultation with USFWS, NMGFD, and NMFRCD should be initiated as part of subsequent environmental documentation to receive concurrence with this determination.

#### **9.3.10.2 2021 Alternative 1**

Because of the limited habit within the DSA, no Federally and state listed threatened and endangered plants and animals are known to inhabit or use the DSA. Threatened and endangered species are not likely to occur or may occur as transients or occasional migrants in the DSA. Therefore, there would be little potential to directly impact proposed or listed threatened and endangered species in the Double Eagle II Airport DSA. Consultation with USFWS, NMGFD, and NMFRCD should be initiated as part of subsequent environmental documentation to receive concurrence with this determination.

#### **9.3.10.3 2021 Alternative 4**

Because of the limited habit within the DSA, no Federally and state listed threatened and endangered plants and animals are known to inhabit or use the DSA. Threatened and endangered species are not likely to occur or may occur as transients or occasional migrants in the DSA. Therefore, there would be little potential to directly impact proposed or listed threatened and endangered species in the Double Eagle II Airport DSA. Consultation with USFWS, NMGFD, and NMFRCD should be initiated as part of subsequent environmental documentation to receive concurrence with this determination.

## **9.4 SUMMARY OF ENVIRONMENTAL OVERVIEW**

A qualitative environmental analysis of the potential environmental impacts resulting from the construction and operation of the No Action Alternative and the two Build Alternatives (1 and 4) was accomplished as part of this Master Plan Study. Quantitative environmental analysis could be conducted as part of a more detailed EA on the proposed Master Plan developments.

### **9.4.1 Summary of Year 2006 Analysis**

Non-impacted environmental categories in the year 2006 analysis include land use, socioeconomics, light emissions, floodplains, farmlands, hazardous materials, wild and scenic rivers, coastal zone management/coastal barriers, wetlands, and natural resources.

Potentially impacted environmental categories associated with the 2006 No Action Alternative and Build Alternative include noise, DOT Section 4(f), U.S. DOI Section 6(f) resources, historic and archaeological resources, solid waste, water resources, air quality, biotic communities, and threatened and endangered species are summarized in the following overview of impacts.

#### **9.4.1.1 2006 Future No Action Alternative**

Under the 2006 Future No Action Alternative, no improvements to airfield or landside facilities would be developed; however, aircraft operations (medium forecast scenario of 165,547) at Double Eagle II Airport would increase with this alternative. The entire noise contour associated with the 2006 Future No Action Alternative would be contained within the airport property (approximately 1.23 square miles). There would be no noise-sensitive land uses within the DNL 65 dBA noise contour and no land use incompatibility resulting from the operation of this alternative. However, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses, such as the Petroglyph National Monument.

Direct impacts to Section 4(f) resources would not occur under this alternative. The increased operations may indirectly impact the Petroglyph National Monument, a DOT Section 4(f) and U.S. DOI Section 6(f) resource. The potential indirect impacts to historic and archaeological resources may include noise and visual impacts to the area, including Native American ceremonies.

Additional aircraft operations associated with the 2006 Future No Action Alternative would generate additional municipal solid waste at Double Eagle II Airport that should be capable of being accommodated at the Cerro Colorado Landfill. This alternative is consistent with guidance provided in FAA AC 150/5200-33 because the Cerro Colorado Landfill is located approximately 14 miles from the runway ends.

Total air emissions associated with the 2006 Future No Action Alternative have the potential to increase when compared to existing conditions due to the increase in operations. In addition, since there are no improvements associated with the 2006 Future No Action Alternative, there would be no construction-related emissions.

Water resource impacts would include increased usage of potable water and wastewater. Stormwater and groundwater impacts would not occur under this alternative. The 2006 Future No Action Alternative would not impact biotic communities and threatened and endangered species.

A quantitative evaluation of the 2006 Future No Action Alternative and associated potential environmental impacts, along with concurrence from Federal, state, and local agency coordination, would be required as part of subsequent environmental documentation (i.e., EA).

#### 9.4.1.2 Build Alternative

Aircraft operations (high forecast scenario of 176,520) at DEII would increase with the 2006 Future Build Alternative. The entire noise contour associated with the 2006 Future Build Alternative would be contained within the airport property (approximately 1.30 square miles). There would be no noise-sensitive land uses within the DNL 65 dBA noise contour and no land use incompatibility resulting from the operation of this alternative. However, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses such as the Petroglyph National Monument.

Similar to the No Action Alternative, increased operations may indirectly impact the Petroglyph National Monument, a DOT Section 4(f) and U.S. DOI Section 6(f) resource. The potential indirect impacts to historic and archaeological resources may include noise and visual impacts to the area, including Native American ceremonies.

Under the 2006 Future Build Alternative, additional aircraft operations (high forecast scenario) would generate additional municipal solid waste at Double Eagle II Airport greater than the No Action Alternative and should be capable of being accommodated at the Cerro Colorado Landfill. The 2006 Future Build Alternative would also increase construction debris/waste compared to the 2006 Future No Action Alternative. This alternative also is consistent with guidance provided in FAA AC 150/5200-33 because the Cerro Colorado Landfill is located approximately 14 miles from the proposed runway ends.

Total air emissions associated with the 2006 Future Build Alternative have the potential to increase when compared to the 2006 Future No Action Alternative due to the increase in future operations. Construction-related emissions for the 2006 Build Alternative would also be greater than the No Action Alternative because of construction activities associated with the 2006 Build Alternative.

The 2006 Build Alternative would add approximately 12.1 acres of impervious surface (runways and taxiways only). This additional impervious surface has the potential to increase stormwater runoff and impact groundwater. The increased operational levels when compared to the No Action Alternative would also result in an increase in the demand for potable water and wastewater at Double Eagle II Airport.

Biotic communities and threatened and endangered species are not anticipated to be significantly impacted by the 2006 Future Build Alternative because the extension of existing runways would occur on previously disturbed airport property.

A quantitative evaluation of the 2006 Build Alternative and associated potential environmental impacts, along with concurrence from Federal, state and local agency coordination, would be required as part of subsequent environmental documentation (i.e. Environmental Assessment).



## **9.4.2      Summary of Year 2021 Analysis**

Non-impacted environmental categories in the year 2021 analysis include the same environmental categories indicated previously in Section 9.4.1, with the exception of land use.

Potential impacts to environmental categories associated with the No Action Alternative and Build Alternatives 1 and 4 include noise, land use, DOT Section 4(f), U.S. DOI Section 6(f) resources, historic and archaeological resources, solid waste, water resources, air quality, biotic communities, and threatened and endangered species are summarized in the following overview of impacts.

### **9.4.2.1      2021 Future No Action Alternative**

The 2021 Future No Action Alternative would be similar to the 2006 Future No Action Alternative since no improvements to airfield or landside facilities would be developed. The DNL 65 dBA noise contour (approximately 1.58 square miles) would remain on airport property and no noise-sensitive land uses would be impacted such as the Petroglyph National Monument.

Direct impacts to Section 4(f) resources would not occur under this alternative. The increase in operations may create indirect impacts. These potential indirect impacts to historic and archaeological resources may include noise and visual impacts to the area, including Native American ceremonies.

Additional aircraft operations associated with the 2021 Future No Action Alternative would generate additional municipal solid waste that should be capable of being accommodated at the Cerro Colorado Landfill and the runway ends located approximately 14 miles from the airport would remain consistent with FAA AC 150/5200-33.

Total air emissions associated with the 2021 Future No Action Alternative have the potential to increase when compared to the 2006 No Action Alternative emissions due to the increase in operations. Again, since there are no improvements associated with the 2021 Future No Action Alternative, there would be no construction-related emissions.

Water resource impacts would include increased usage of potable water and wastewater. Stormwater and groundwater impacts would not occur under this alternative. The 2021 Future No Action Alternative would not impact biotic communities and threatened and endangered species.

A quantitative evaluation of the 2021 No Action Alternative and associated potential environmental impacts, along with concurrence from Federal, state and local agency coordination, would be required as part of subsequent environmental documentation (i.e., EA).

#### 9.4.2.2 2021 Alternative 1

Aircraft operations (high forecast scenario of 342,908) at Double Eagle II Airport would increase with the 2021 Alternative 1. There would be no noise-sensitive land uses within the DNL 65 dBA noise contour and no land use incompatibility resulting from the operation of this alternative. However, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{\max}$  to evaluate potential noise impacts to surrounding land uses such as the Petroglyph National Monument.

The northern location of crosswind Runway 10/28 associated with 2021 Alternative 1 would require the acquisition and conversion of approximately 253 acres of City of Albuquerque Open Space to airport property. The estimated acquisition area does not take into account the proposed property exchanges to accommodate Eclipse Aviation, as discussed in Section 8.0, Airport Alternatives Analysis, of this Master Plan.

Similar to the No Action Alternative, no direct impacts would occur to a Section 4(f) resource, however, increased operations may indirectly impact the Petroglyph National Monument. The potential indirect impacts to historic and archaeological resources may include noise and visual impacts to the area, including Native American ceremonies.

Under 2021 Alternative 1, additional aircraft operations (high forecast scenario) would generate additional municipal solid waste at Double Eagle II Airport greater than the 2021 No Action Alternative. This additional MSW should be capable of being accommodated at the Cerro Colorado Landfill. In addition, due to the construction of the 2021 Alternative 1, construction debris/waste would be greater than the No Action Alternative. This alternative also is consistent with guidance provided in FAA AC 150/5200-33 because the Cerro Colorado Landfill is located approximately 14 miles from the proposed runway ends.

Total air emissions associated with the 2021 Alternative 1 have the potential to increase when compared to the 2021 Future No Action Alternative due to the increase in forecast operations. Construction-related emissions for the 2021 Alternative 1 would also be greater than the 2021 No Action Alternative because of construction activities associated with the 2021 Build Alternative.

The 2021 Alternative 1 would add 102.5 acres of impervious surface (runways and taxiways only). This additional impervious surface has the potential to increase stormwater runoff and impact groundwater. The increased operational levels when compared to the No Action Alternative would also result in an increase in the demand for potable water and wastewater capacity at Double Eagle II Airport.

Biotic communities and threatened and endangered species have the potential to be impacted by the 2021 Alternative 1; however, these potential impacts are not anticipated to be significant.

A quantitative evaluation of the 2021 Alternative 1 and associated potential environmental impacts, along with concurrence from Federal, state, and local agency coordination, would be required as part of subsequent environmental documentation (i.e., EA).

#### **9.4.2.3 2021 Alternative 4**

Aircraft operations associated with the 2021 Alternative 4 would equal those associated with the 2021 Alternative 1. The entire noise contour associated with the 2021 Alternative 4 would be contained within the airport property. No noise-sensitive land uses would be within the DNL 65 dBA noise contour, and no land use incompatibility would result from the operation of this alternative. However, this analysis did not use supplemental metrics such as SEL, Time Above, or  $L_{max}$  to evaluate potential noise impacts to surrounding land uses such as the Petroglyph National Monument and future residential areas.

The southern location of crosswind Runway 10/28 associated with 2021 Alternative 4 would require the acquisition and conversion of approximately 361 acres of State of New Mexico land and Westland North property to airport property. The estimated acquisition area does not take into account the proposed property exchanges to accommodate Eclipse Aviation, as discussed in Section 8.0, Airport Alternatives Analysis, of this Master Plan.

No direct impacts would occur to a Section 4(f) resource, however, increased operations may indirectly impact the Petroglyph National Monument. The potential indirect impacts to historic and archaeological resources may include noise and visual impacts to the area, including Native American ceremonies. However, 2021 Alternative 4 indirect impacts are anticipated to be less than the indirect impacts associated with 2021 Alternative 1, due to lesser potential for aircraft operations over the Petroglyph National Monument.

Impacts including municipal solid waste, construction debris, total air operational emissions, construction-related emissions, additional impervious surface, biotic communities and threatened and endangered species for the 2021 Alternative 4 would not be significantly different than the 2021 Alternative 1.

A quantitative evaluation of the 2021 Alternative 4 and associated potential environmental impacts, along with concurrence from Federal, state and local agency coordination, would be required as part of subsequent environmental documentation (i.e., EA).